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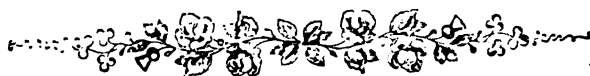
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LONDON, S.E.**Journal of Horticulture.**

THURSDAY, JANUARY 2, 1908.

Advance of the Amateur.

WHEN we think of the amateur gardener as we knew him years ago, we remember a fussy old gentleman who had been successful in business and was spending the evening of his days in quiet retirement in the suburbs or in the country. It was essential and in keeping with his retirement that he should have a garden, in which he potted and did little odd jobs when the man whom he employed to look after the garden would let him. As for gardening itself he knew nothing about, and was constantly being reminded of the fact by the superior individual who came in two or three days a week to keep the place in order. The latter, by the way, was a gardener, and the former an amateur, and there you have the difference between the two, one laying claim to a considerable amount of horticultural knowledge, and the other freely admitting his ignorance in these matters. I do not mean to say, of course, that all amateurs of the old school were of this type exactly, but the very title suggested an individual who possessed the means for indulging his horticultural taste on a small or large scale, but who laid no claim to expert knowledge of gardening. There were exceptions, naturally, but I am alluding to the rule, and it must be said of the professional element that they nursed their knowledge to show up the ignorance of the amateur, and did not go out of their way to enlighten the latter in the mysteries of cultivation. Even in the higher walks of horticulture the same kind thing prevailed. My lord and lady had a garden, but were amateurs in the accepted sense of the term, as they did not aspire to any knowledge of horticulture, but left all to the gardener, and merely paid the bills, and enjoyed the good things produced by the professional man. Of him it is said that he was sometimes a tyrant, and ruled supreme in the department over which he had charge, even objecting in cases to the

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master and mistress cutting one of their own flowers without his permission and approval. Perhaps this is exaggerating the case somewhat, but the charge of tyranny could be easily upheld by many illustrations.

Then there was the lowest type of amateur, which included the cottager and the allotment holder, who might or might not be able to read and write, and muddled along, growing the necessary vegetables for the household in a rule of thumb kind of way, but possessing no real knowledge of horticulture, nor much ambition for acquiring any. Needless to say, the professional gardener was an authority in the days referred to; more often than not he paid a premium and served an apprenticeship in one of the lordly establishments in the country; and the very fact of him doing this gave him a standing which I am afraid the majority of gardeners at the present time do not possess. In short, he was the man who knew about gardening; his advice was frequently sought, and he was accepted as an authority.

To-day the terms amateur and professional are used much the same as they ever were, but with a marked difference, inasmuch as hundreds of amateurs are real experts, and the only way in which they differ from the professionals is that the latter follow gardening as a means of occupation, and the former as a hobby. A wonderful growth in the taste for horticulture has done a great deal to bring about this change. More people are now devoted to the pursuit of gardening than ever before, and the amateur of to-day is not content to admire or enjoy a thing when someone else has grown it, but, on the other hand, he wants to have a finger in the actual production. Even in aristocratic circles things are different to what they used to be when the owner's privilege in his garden was to walk round it. Now, both ladies and gentlemen like to take an active part in the operations, to grow things themselves, and watch their development. In short, gardening is fashionable, and there is nothing undignified about a lady of high degree donning thick boots and short skirts and working in the garden with her own hands. Let it be added in a whisper, however, that this kind of thing is not always conducive to the peace of mind of the professional, who is paid to look after the establishment. All depends on the lady, who may be a faddist, and appropriates all the labour strength of the establishment in the pursuit of her pet hobby, and then blames the poor gardener if other parts of the garden are neglected. A happier state of affairs is where the employer takes a delight in his garden, works in it if you like, and is an expert in horticultural matters, but admits that his gardener is one also, and encourages him accordingly. It is good to see master and man working together on these lines, both finding their pleasure in the garden, though to one it is a hobby and to the other an occupation. Call such a man an amateur if you like, but no one would begrudge him one jot of his knowledge or the pleasure he derives from the pursuit of his calling.

We also have the middle class amateur, who is likewise an expert. You travel with him in the train on his daily journeys to his business in town, and notice that invariably he has a specimen of his favourite flower in his buttonhole. You see him at shows, taking an unfeigned interest in the exhibits, and jotting down names for future reference, and more often than not he is a specialist who devotes his time and attention, yea, also his money, in the culture of the plant he loves best, be it the Rose, Carnation, Dahlia, Sweet Pea, or what not. In his leisure moments you find him in his garden, not watching an odd man doing the work, but performing it himself, and with a skill that marks him at once as an expert. You find this type of amateur wearing the clerical garb of the established Church, and many a horticultural parson dumped down in a rural parish with few people of equal education and similar tastes to associate with, has found pleasure and contentment in the pursuit of gardening.

There is yet another class of amateur, the artisan or working type, who is as keen as mustard, and is a gardener because Nature fashioned him that way. Education has been responsible for bringing him to the front, and cheap literature has aided him in the acquirement of knowledge. You find him in town and country, working at various occupations, but you never see him lounging about in the evening supporting street corners. He is then in his garden or allotment, or in the little greenhouse which he built with his own hands, working amongst his Chrysanthemums or whatever plant he loves best. This type of amateur is a seeker of knowledge, he reads his gardening paper diligently, sends puzzling questions to the editor, belongs to a gardening society probably, and would discuss gardening with a gate post if he thought the latter could supply him with a wrinkle or two. But our working amateur is no ignoramus, as the things he grows and the produce he exhibits prove. On the other hand, he is a highly intelligent individual, and whether his hobby be Chrysanthemums or big Onions, it is characteristic of him that he puts his whole heart into it. To realise what this type of man really knows you want to be with him, say on a Sunday morning, when, in company with a few of his bosom gardening friends, the results of his efforts are under earnest discussion. You will see then that he has not read and talked

and experimented to no purpose, but that he has every right to the title of gardener though he is classed as an amateur.

Lastly, the prosperity of the nursery trade, the influence of the horticultural press, the popularity of certain plants and flowers, and the success of many exhibitions are due in a great measure to the amateur fraternity in its varying grades. In short, amateurs to-day are a great power in the gardening world, and with the increasing taste for horticulture which is apparent amongst the community described, the future of the ancient craft is distinctly promising.—H.

As I write, the thin, dust-like snowflakes are falling slowly, and the surface of the landscape is already sprinkled with a veil of whiteness, sufficiently pronounced to paint the scene with a true touch of winter. Seasonable weather truly, though coming just after the grand old festive day. The book of the old year has closed, and a new one is spread before us, and ere these lines appear in print humanity will be pressing forward to the struggles, failures and victories of another year.

January is essentially the time to form good resolutions and make plans for the future; and though realisation may often fall far short of the original aim, everyone is the better for having definite aims and a strong determination to accomplish their task. The future lies with the young; and the great army of young gardeners throughout the land will be well advised if at the commencement of another year they set themselves some great task to accomplish, and then strive with might and main to achieve their object.

I have known men who in the days of youth had such varied experience in different places that when called upon to take up the responsibilities of head, were sore troubled for a time to settle which of the many methods they had practised would be the best adapted to prevailing circumstances. Difficulties of this description are often very real with the young head until confidence is gained, and much might be done to simplify matters if young men would take notes systematically, compare the methods practised in various places at which they serve, and get into a habit of forming their own conclusions from the results obtained. Above all, the young should endeavour to get a firm grip of the principles which underlie the performance of various operations, because when the principle is understood the actual practice may be varied considerably with the same object in view.

To-day the opportunities for acquiring knowledge concerning gardening—as well as other callings—are infinitely greater and more numerous than ever before, and therefore the aims of the present generation should be higher than those of the past, because when knowledge is so accessible to all, those who neglect their opportunities will, by reason of the keener competition, be more quickly left behind than in past times. I can quite understand that those aspirants who pen those excellent contributions which appear in "The Domain," derive the greatest pleasure, and become keenly interested in their efforts, because they feel conscious of the keener intelligence thus developed, which is of far greater value than the satisfaction of sometimes winning a prize.

The year before us opens wide the gate to future possibilities. Horticulture has progressed enormously during the last twenty years; but it is going to occupy a much more commanding position in the near future. Land, which for generations has only been surface scratched, will gradually be brought under that intensive culture which is a marked feature of modern horticulture. Apply that system of cultivation to half the badly cultivated land in this country, and the serious problem as to what we should do for food in time of war would be solved. The Small Holdings Act, which comes into operation during the opening month of the year, is another landmark in the evolutionary progress of turning agriculturists into horticulturists. Some will fail, but the right men, those with courage and knowledge, will obtain the opportunity they have long hoped for.

Now for a concluding word to *Journal* readers and writers generally. The latter are perhaps sometimes quite a truculent set; they have their little family jars, and really we like them all the better for it, because there can be no progress where all agree. In expressing their ideas and combating the arguments of their opponents they doubtless keep their mental faculties clear and alert, and possibly learn a good deal from each other (though they seldom own up to this!). Readers have of late been very much to the fore in their own "domain," and have tackled the writers in real earnest. Together, I think we form a very happy family, growing in numbers and importance through the tactful generalship of the Editor, and stimulated by thoughts of the long and successful career of "OUR JOURNAL," the gardeners' true friend.

May such pleasant associations long continue, and let me extend to readers, writers, and all connected with the *Journal of Horticulture*, heartiest wishes for a bright and prosperous new year.—ONWARD.



Sopbro-cattleya Eximia, Fowler's variety.

This pretty little bigeneric hybrid received the honour of a first class certificate at the hands of the Orchid Committee (R.H.S.) on December 10th. It was exhibited by Mr. J. Gurney Fowler (gardener, Mr. J. Davis), Glebelands, South Woodford. The parentage is *Sophranitis grandiflora* and *Cattleya Bowringiana*; and of its size and shape our readers can judge by the drawing herewith presented. The sepals and petals are glowing mauve-crimson. Lip, yellow at the base, lined with red; the front ruby-red.

Oncidium.

Sufficient attention is not always paid to this handsome genus, particularly to the Brazilian section, which embraces such valuable autumn and winter flowering subjects as *O. varicosum* Rogersi and others. The graceful arching sprays of the species just mentioned are always admired, and a fine effect is produced when nicely arranged between other orchids or foliage plants; in fact, what would a large group of *Cypripediums* insignis (such as staged at the R.H.S. and other shows) look like without the gorgeous yellow varicosums? *Oncidium crispum* is another desirable plant. This blooms at various times of the year, and has rich chestnut brown sepals and petals, while the lip is yellow and brown, spotted with red at the base. *O. Forbesi* always proves a favourite, and *O. Gardneri*, a supposed natural hybrid between *Forbesi* and *dasystyle*, should also be included wherever *Oncidium*s are cultivated. The following are all worthy of attention: *O. bicallosum*, *curtum*, *prætextum*, and *Mantini*, which is said to be of hybrid origin, viz., *Marshallianum* x *Forbesi*. Those already noted are large flowered varieties; but some of the smaller ones look quite as well as their more highly coloured relatives. The charming little *O. cheiroporum* and *O. ornithorhynchum* might be cited as examples.

The most suitable structure for this class of orchid is where the temperature can be kept from 55deg to 65deg, or such as the cool end of the *Cattleya*-house. They are all dwarf-growing subjects, and may be suspended about 2ft from the roof glass; but if possible space should be made on the stage, as this becomes a necessity when the flower spikes begin to lengthen, and I believe the plants improve under such treatment, although some growers advise the former method. When repotting (which takes place when the pseudo-bulb is nearly completed), never use a receptacle several sizes larger than is actually needed to conveniently hold the plant. Ordinary flower pots or pans should be used in preference to baskets, and provide ample drainage according to the depth of the pan or pot selected. A mixture of sphagnum moss, peat, and partly decayed leaves, with a few small crocks or coarse sand added, is considered very good soil for *Oncidium*s; but wherever leaf mould forms part of the compost it ought to be pressed a little firmer than if sphagnum and peat alone constituted the rooting medium.

Oncids delight in a porous soil and good drainage, especially during the winter months, when watering takes place at rarer intervals. Throughout the growing season, which is usually in the hottest portion of the year, plenty of moisture must be applied both direct and in the immediate neighbourhood of the plants, and probably no other genus enjoys a light spray overhead as the plants of this one whenever the weather is favourable. Plenty of fresh air is necessary. Give all the sunlight possible without injury to the leaves, and a rest after the flower spikes are removed; but sufficient water must be supplied so as not to distress the pseudo-bulbs.—T. ANSRIS.

Calanthes at The Willows, Wargrave.

When on a recent visit to these well-known Berkshire gardens I noticed some *Calanthes* which were remarkably well grown. They included the ever-popular *Veitchi*, *vestita*, and *Wm. Murray*, a cross between *rubro-oculata* and *Regneri*. Of the former there were specimens with spikes 4ft 6in to 5ft in length, carrying twenty or so expanded flowers of first rate quality and numerous buds. To show the vigour of the plants I might mention that some were pushing forth three spikes from the same bulb, while the majority had made two breaks when starting in the spring. One specimen of *Wm. Murray* had four fine spikes, but not quite so long as the *Veitchi*s. This plant made two leads from a single bulb. It is a good grower, and one that should occupy a prominent place wherever this useful genus is cultivated.

Thinking that a few cultural details would be acceptable to

readers of the *Journal*, I plied Mr. Pope, the capable head gardener, parish councillor, and enthusiastic friend of all gardening charities and societies, with a few questions, which he willingly answered. They are potted when the new growth begins to root, into pots just large enough to take the bulbs; and when the pots are filled with roots a shift is given into receptacles two sizes larger, in which they bloom. The soil used is a mixture of fibrous loam, peat, and sphagnum in equal parts, to which is added a small quantity of dried cow manure. This is collected from the meadow, is dried, and rubbed through a $\frac{1}{2}$ in sieve, which is all they receive in the way of manure. A moist brisk atmosphere and careful watering was also recommended when in full growth. Other orchids in flower embraced several nice pieces of *Laelia anceps*, a *Cœlogyne*, probably *graminifolia*, *Vanda Kimballiana* in spike, and various *Cypripediums*, while the quaint *Maxillaria picta* gave a wealth of blossom.—T. A.

Orchids in Their Native Habitats.

On December 18, before the Egham (Surrey) Gardeners' Society, Mr. Swan gave a lecture on the above, beginning with orchids indigenous to Great Britain, and enumerating those found in other countries, in fact taking his hearers all over the world, giving the elevation at which they were found, average



Sopbro-Cattleya eximia, Fowler's var.

rainfall, temperature, and a mass of other information, giving vivid pictures of these lovely plants where found in masses in their native homes. Mr. Swan also described the peculiar structure of the aerial roots of the epiphytal species. In some of the localities mentioned rain fell to the extent of from 130in to 200in during the year, at other times the intense natural heat caused the plants to shrivel very much. Owing to the more rapid means of transit importations arrived in much better condition than formerly. The subject of orchid growing at home was also touched upon, including class of houses for different species, ventilation, temperatures, shading, potting, basketing, watering, &c. A discussion followed, and Mr. Swan was warmly thanked for his lengthy and interesting paper. Mr. S. Worsfold, gardener to C. H. Austin, Esq., brought two fine specimen plants of *Cypripedium insignis*, and received a vote of thanks. Mr. Bird obtained the prize for three sticks of *Celery* shown by cottagers and amateurs.—H. P.

Cypripediums at the Hall.

A fortnight ago we referred to a few of the really pretty *Cypripediums*. Very many are dull-coloured, and of neither a handsome nor sprightly shape. The following are other excellent kinds:—*Cypripediums* Mrs. W. Mostyn, Mrs. Alfred Fowler, *Fascinator*, *Niobe*, and *Boadicea majesticum*. Each of these is a hybrid. If collectors would confine themselves to those with rich or clearly defined colours, and of pleasing form, *Cypripediums* would become more widely prized.

Trees and Shrubs.

Some Winter-fruiting Subjects.

Although the bright coloured fruits of various trees and shrubs are highly appreciated in autumn when associated with rich hued foliage, those which are retained on the trees until Christmas or later are even of more value, for after deciduous trees have lost their leaves the bright coloured fruits are very conspicuous, and on a sunny day are distinguishable at a considerable distance. Although a goodly number of trees and shrubs shed their fruit soon after it ripens, there are many others which keep theirs for several months unless attacked by birds, and whilst food is fairly plentiful there are some things that birds do not attack badly.

One of the most charming effects in December is formed by the climber *Celastrus articulatus*. This is a native of China and Japan, and is of rampant growth, forming an excellent subject for clothing a pergola post, arbour, or good sized tree. At the present time, early December, it is a mass of golden fruits, which open in a similar manner to the fruit of the Spindle tree, and disclose the scarlet coated seeds within. The Snowberry is a familiar plant at this season, its clusters of white fruits being very conspicuous. As a contrast to this we have the various *Otoneasters* with red or scarlet berries. The one that holds its fruits latest is *C. rotundifolius*, a bush with scarlet berries, whilst *Simonsi*, *frigida*, *horizontalis*, and the newer *pannosa* and *Franchetti* are all conspicuous and handsome. Wild Roses of various descriptions are bright with red, orange, or scarlet fruits, conspicuous ones being various varieties of *R. canina*, *macrophylla*, the new *Souleana*, and so on.

The Siberian Crab gives a good account of itself, the fruits being bright red and hanging for a long period. Several Thorns, such as *Crataegus mollis* and *C. Crus-galli* var. *prunifolia* with red fruits, *C. cordata* with scarlet, *C. Carrieri* with orange and red fruits, *C. pyracantha* with scarlet, and *C. mexicana* with yellow fruits are noticeable. Quite distinct from these are the brown winged fruits of *Ptelea trifoliata*, the inflated pods of *Colutea arborescens*, the curious bladder-like fruits of the various species of *Staphylea* and the red tufts of *Rhus typhina*. The *Pernettyas* are always admired with their innumerable berries of various hues, red, white, purple and pink being represented. *Berberis Wallichiana* retains its black fruits until well on into the New Year, whilst the same may be said of the deep purple berries of *Gaultheria Shallon* and the tiny red fruits of *G. procumbens*. The *Hollies* are, of course, a host in themselves, and well fruited examples of either the scarlet or yellow berried varieties form very showy specimens.

For conspicuous positions these subjects that retain their fruit for a lengthy period require special attention, for they brighten up the garden at a time when it would otherwise be dull. The trees form excellent lawn specimens, whilst the shrubs are desirable either for beds or shrubbery groups. Before closing this note, mention should be made of the Sea Buckthorn. This bears orange coloured fruits with great freedom, and may be relied on to bear a good crop annually, provided male and female plants are grouped together.—W. D.

Eucryphia pinnatifolia.

Three species of the genus *Eucryphia* are in cultivation, i.e., *E. pinnatifolia* and *E. cordifolia* from Chili, and *E. Billardieri* from Tasmania. Of the three *E. pinnatifolia* is by far the most important from a horticultural standpoint, for, in addition to being the hardiest, it is also the most ornamental. It succeeds best in the warmer parts of the country, and prefers a rather light warm soil, with peat for preference. Occasionally fine specimens 12ft to 15ft high are met with, but such examples are rare, and even plants of modest dimensions are anything but common. When well established it forms a shapely bush, and is of considerable value for its pinnate evergreen leaves, but its value as an evergreen is quite eclipsed by its usefulness as a flowering shrub, for when covered with blossoms during July or August it forms one of the most lovely sights imaginable. The flowers are white, 2½in to 3in across, with a large number of thread-like stamens, and last in good condition for a good period. Unfortunately it is a rather difficult shrub to propagate, as seeds are not readily obtainable in quantity, and cuttings prove unsatisfactory. Resort is usually made to layering, but branches take a long time to root and are rather bad to establish after being severed from the parent plant. When obtaining plants care should be taken to obtain those well established in pots, and be careful to plant at once in permanent quarters, so that no future transplanting is required. If a mixture of peat and light sandy loam can be provided so much the better.—W. DALLIMORE.

NOTES & NOTICES

The Crystal Palace Christmas Tree.

The monster Christmas tree which was erected at the Crystal Palace was presented to the Palace by Sir Jeremiah Colman, Bt.

Royal Gardeners' Orphan Fund.

The Coming-of-Age Festival in aid of this charity will take place at the Hotel Cecil, London, on Tuesday, May 12, when the president of the fund, the Duke of Bedford, K.G., has kindly consented to preside.—B. WYNNE, 30, Wellington Street, Covent Garden, W.C.

R.H.S. Scientific Committee.

Will you be so good as to make the following corrections in the minutes of the Scientific Committee for 10th December? SEEDLESS APPLES.—In the seedless Apple to which Mr. Worsdell referred the little structures at the "eye" end of the fruit were actual Apples, but only partially developed, and not only Apple-like structures as reported. MALFORMED FUNGUS.—This was a species of *Tubaria*, not *ribarraria* as written.—F. J. C.

Kent, Surrey, and Sussex Daffodil Society.

Referring to a schedule of the above recently sent you, we should feel very grateful if you could find space to mention that the date of the annual show for 1908 has now been fixed for April 15th next, at the Great Hall, Tunbridge Wells. I may mention that interest in this society continues undiminished, and admirers of flowers who visit the annual show now tell us that they look forward to it as the most important spring floral event in the south-eastern counties.—HERBERT CHAPMAN, 101, High Street, Rye.

Dickson and Robinson's Annual Dinner.

For more than a decade the good feeling which has existed between the firm of Messrs. Dickson and Robinson, the King's seedmen, of Manchester, and its staff has each year culminated in a dinner and convivial evening. On Wednesday, the 18th inst., the staff once more met at the Victoria Hotel, where an excellent refection occupied a goodly time, and after which the evening was given up to toasts and music. No music, it may be said, comes from outside; all, even the accompanist, are of the staff. A right good account each gave of himself. The chair was, as at past gatherings, occupied by the senior partner, Mr. Robinson. Replying to the toast "The Firm," briefly and very fittingly proposed by Mr. Compson, Mr. Robinson, amongst other things, remarked its steady and satisfactory progress. He complimented the departmental managers on the expeditious manner in which the preparatory work and the execution of orders had been carried through. Special stress he laid on the continuous care and close attention it was necessary the juniors should give to whatever work was entrusted to them; thus not only assisting in the retention of the firm's excellent reputation, but laying down for themselves a foundation from which in after years they would build up success. He reviewed the bad weather of the year, and pointed out the disastrous effect it had had on the grass and clover crops in nearly every seed-producing country of the world, adding that the red clover crop had been almost a failure. Mr. Hicks gave the toast "The Staff," reiterating his partner's remarks on the need for cohesion between the employee and his work. In thanking the members of the staff for their efforts of the closing year, he took opportunity to refer to the length of service of many: two thirty and more years, one twenty-one, one twenty, and several thirteen to twenty years—evidence in itself, not only of the existing good feeling but of its permanency. The names of Messrs. Clayton and Ward being coupled with the toast, each suitably replied. The toast "The Chairman" was proposed by Mr. Anderson, and if ever it were better given, certainly in it was never embodied so much good humour. Mr. Wort, the firm's southern representative, journeyed specially from London to be present.—W.

Bird News.

Bird Notes and News; autumn number, No. 7. This is issued quarterly by the Royal Society for the Protection of Birds, 3, Hanover Square, London.

"The Ordinary Male Gardener."

A recent quarterly issue of the "Studley College Agricultural Journal" contained the following startling announcement: "Miss ——— has undertaken the management of the garden of a lady who finds she cannot get conscientious work from the ordinary male gardener."

Roses at Purley.

The first lecture open to members of the Purley (Surrey) Rose Society was given at the National Schools, Purley, by Mr. H. E. Molyneux, the hon. treasurer of the National Rose Society, when a most instructive and interesting paper on "The Rose as a Decorative Garden Plant" was read. There were upwards of fifty members present. Mr. F. Brazier fixed on the stage a lovely stand of beautiful Roses of various kinds. The lecturer dealt with the culture, pruning, and also on the qualities of certain manures. At the close of the lecture numerous questions were ably answered, the meeting being brought to a close by a vote of thanks to the lecturer.

Notes from Wroxham, Norfolk.

Since Christmas eve we have been encountering very cold and stormy weather. A strong north-east wind, extremely cold and piercing, has been blowing almost steadily since Wednesday. Though snow was hourly expected as a likely concomitant, up till now it has happily passed over. Frost was not severe, the greatest on one night here was only 6deg. Previous to this cold snap we had a plethora of wet weather. Indeed, speaking generally, the year had little else to recommend it. Still, much rain can do little harm to this part of Norfolk. What is not apportioned to marshlands and Broad is so well naturally drained by thick gravelly substrata, that the effects of the heaviest rain are effaced in a few hours after its occurrence. Like many other fruits, Holly berries were scarce, barely affording the necessary quantity for house decoration. Inferring from the abundance at disposal last year, the Holly evidently has a strong partiality for a hot season, and so has the Chestnut. Scarcely any nuts arrived at maturity this season, and probably had it not been for the heat of the month of September they would be all abortive. The flocks of small birds so common at this time of the year are not at all in evidence. This time last year the hordes of chaffinches could be counted in tens of thousands. Doubtless the wet nesting season accounts for much of this falling away in numbers. The same applies to all our songsters, blackbirds and thrushes not excepted.—D. C.

"An Educated Gardener."

It is an undeniable fact that ladies are taking more seriously to gardening than ever before in the history of the world, and the advantages of this healthful and, moreover, profitable calling are being repeatedly urged upon them. There are, of course, limits to this sort of thing. Though it would be very pleasant to have an educated gardener who did not mangle the names of our flowers and puzzle us to the verge of distraction by talking about our Auriculas as "Reckless," Rhododendrons as "Rosydandrons," and Gloire de Dijon as "Glory de Daijons," still the work is too hard for a woman. Even less is she adapted to the work of a jobbing gardener, to mow and mow and mow, and then sit idle from November to February, although of course it would give plenty of time for that most important function, the sending of 300 Christmas cards to her 300 special friends. But there is great scope for ladies to do market gardening of the higher order. The names of two ladies immediately occur to the memory who make a very good thing out of a little Violet farm with a few other accessories to fill up the year. It means getting up at five every morning, but that is far from an unhealthy habit. In any case, one of the sex, erroneously called feeble, who finds time and milliners' bills hanging heavy on her hands, might do worse than make trial of one of the excellent horticultural colleges near London.—("Evening Standard.")

Annual Meeting of the B.G.A.

Arrangements have been made to hold the annual meeting as usual at the Essex Hall, Essex Street, Strand, London, on Wednesday, May 27, at 7 p.m. In November the society had a balance of £224 3s. 4d. at the bank, and a membership of 1,120. It is proposed that members should wear a badge.

Weather in Perthshire.

Since the departure of the somewhat severe frost at and before the beginning of December, there has been a recurrence of the wet weather that has so long prevailed. Within the past few days slight showers of snow have been frequent, and all the surrounding hills have been covered to their bases. Monday brought the first thorough coating to the low grounds, and it looked as if more was to follow.—B. D., S. Perthshire.

"Gardening World" Pocket Diary.

We have received from the "Gardening World" a small pocket-book and diary, of the usual neat and useful pattern. Besides the pages for notes, there are several lists of plants that may be found useful for reference. The names of Victoria Medalists of Honour in horticulture are also furnished, and we cannot but think that our own "Horticultural Directory" must have proved a useful guide to the compiler of the names. There are also recipes for various gardening operations. The book is sold at 1s. net.

Prodigies of the Season.

Mr. Frank Gray, landlord of the Lower Red Lion Inn, Herne, Kent, has gathered some ripe Raspberries from his garden. They were grown in the open and were fine specimens. * * A bunch of Fuchsias was picked in a garden at Appleby, Northumberland, and used for Christmas decoration. * * Wallflowers, Primroses, Polyanthus, Snowdrops, and Strawberry blossom are in bloom in gardens in Northwich, Cheshire. * * Primroses are blooming in a garden in Campbell Road, Hanwell, Middlesex. * * At Kennington, Ashford, Kent, there is the unusual spectacle of a Pear tree in full blossom on Christmas Day. The gardens generally in the district have a spring appearance, among the flowers in bloom being the Polyanthus, Pansy, Wallflower, Rose, and Marguerite.

New Year's Day.

January 1, as New Year's Day, is still (says a writer in the "Daily Chronicle") a comparatively modern institution in England, for long after other countries, including Scotland, had adopted the Gregorian calendar, we still kept to Lady Day and March as the close of the Old and the beginning of the New Year. Pope Gregory's return in 1582 to the old Roman day of January 1 as New Year's Day was immediately followed by France, Spain, and Portugal, but while James I. and VI. soon afterwards made January the starting point of the year in Scotland, he did not enforce the reform south of the Tweed. Thus it came about in England only in 1752. Indeed, the old style still remains in the fact that March is the end of the national financial year, as it used also to be socially and chronologically.

Electric Plant Culture.

The electric culture installation lately set up in the gardens of the Royal Botanic Society in Regent's Park by Mr. B. H. Thwaite (says "The Times") has been working provisionally for some weeks. A committee has now been formed to take charge of the experiments. The society will be represented by the chairman of its council, Mr. J. R. Diggle, and Dr. W. Cooke Adams; Professor Bottomley, M.A., Ph.D., of King's College, will represent the scientific botanical side; and Messrs. G. Gordon, V.M.H., P. H. Cragg, J. Green, and J. H. Witty the practical horticulturists. In addition to these names, Mr. Thwaite and Mr. Bastin are also serving upon the committee. A control house has been arranged, where plants will be grown for comparison under precisely the same conditions, but without electric light. The committee have arranged for regular observations, and the results obtained will be compared and tabulated day by day. The houses will be open so that Fellows and visitors to the gardens will have ample opportunities of seeing the work carried on in its various stages.



At Camphill Gardens, Glasgow.

Mr. J. Williamson, jun., 16, Grafton Square, Glasgow, in sending the photograph which is reproduced below, writes:—"I am advised by the Glasgow Corporation Parks Department that this is the finest display of Chrysanthemums they have ever had. It embraces forty-one varieties. It stands unequalled in Scotland, perhaps in Britain, and reflects great credit. Liverpool disputes our position as the Second City. I venture to think she will not dispute our premier position as growers of the 'towsy heads.'"

The Decline of Incurved Chrysanthemums.

One cannot but regret that the zeal of the present-day gardener and Chrysanthemum grower is set so wholeheartedly on the Japanese blooms. Not only do we find this slight appreciation of the incurved prominent among gardeners, but among the general public also. There is, it is true, a small section that still stands by the incurved bloom, and place it even before the popular Jap, but it is indeed only a small community. It is, however, pleasing to notice that raisers are still persisting in their duty to provide new kinds. The incurveds appeal much more strongly to my sympathies than do the very best Japanese, but in saying this I do not infer that the latter section are sacrificed. Chrysanthemum societies might do a great deal towards the popularising of the incurved section were greater prominence given them in schedules. Joint classes—equal numbers of each—for which prizes were much more frequently given in former days, tended to keep the incurved before the public. Too many schedules now give bare recognition to "China," and too much to "Japan." If Chrysanthemum societies were to institute classes similar to those of the R.H.S.'s fruit show, and require, say, eight Japanese and four incurved for each stand of twelve blooms, the latter to be placed in the front row, there would not only be a new interest in the incurveds, but the exhibition would allow of more critical comments. Formerly, perhaps, the incurved were too small to occupy the same stand as their Japanese fellows, but the accession of new seedling introductions makes this objection very much less forceful. I feel sure that if societies who have struck out incurved classes were to reinstate them on the lines just mentioned, they would only do justice to what are really the oldest Chrysanthemums.—W. STRUGNELL.

Chrysanthemums at Edinburgh.

I send you the names of Chrysanthemums and the number of times the same variety appeared in the prize-taking classes at the shows held in Edinburgh on the 15th November, 1906, and the 14th November, 1907. It sets out the varieties that are most popular for exhibition purposes, though the two seasons were very different so far as the weather was concerned. In Scotland some of the best growers could not exhibit owing to their plants being too late or from the blooms damping off when near show time.

Varieties of Chrysanthemums which were staged oftener than thrice in the prize-taking classes on the 15th November, 1906:—

Name.	Number of times staged
J. H. Silsbury ...	20
Lady Conyers ...	18
F. S. Vallis ...	18
Bessie Godfrey ...	17
Mrs. G. Mileham ...	13
Elsie Fulton ...	11
Mrs. W. Knox ...	10
Mme. P. Radaelli ...	9
Mrs. E. Beckett ...	8
Mme. E. Cadbury ...	8
Mrs. A. T. Miller ...	7
Mrs. J. C. Neville ...	7
Olive Miller ...	6
Reginald Vallis ...	6
Mme. G. Rivol ...	4
Duchess of Sutherland ...	4
W. R. Church ...	4

Varieties of Chrysanthemums which were staged oftener than thrice in the prize-taking classes on the 14th November, 1907:—

Name.	Number of times staged.
Mrs. A. T. Miller ...	25
J. H. Silsbury ...	18
Elsie Fulton ...	18
F. S. Vallis ...	17
Lady Conyers ...	15
Bessie Godfrey ...	13
Mrs. G. Mileham ...	12
Mme. P. Radaelli ...	11
Mrs. W. Knox ...	9
Mrs. F. W. Vallis ...	8
Mme. G. Rivol ...	8
Reginald Vallis ...	7
Algernon Davies ...	7
Mme. E. Cadbury ...	6
Dorothy Oliver ...	6
Mrs. C. Beckett ...	6
Henry Stowe ...	5
Marquise V. Vencsta ...	5
Mrs. E. Crossley ...	5
Olive Miller ...	4

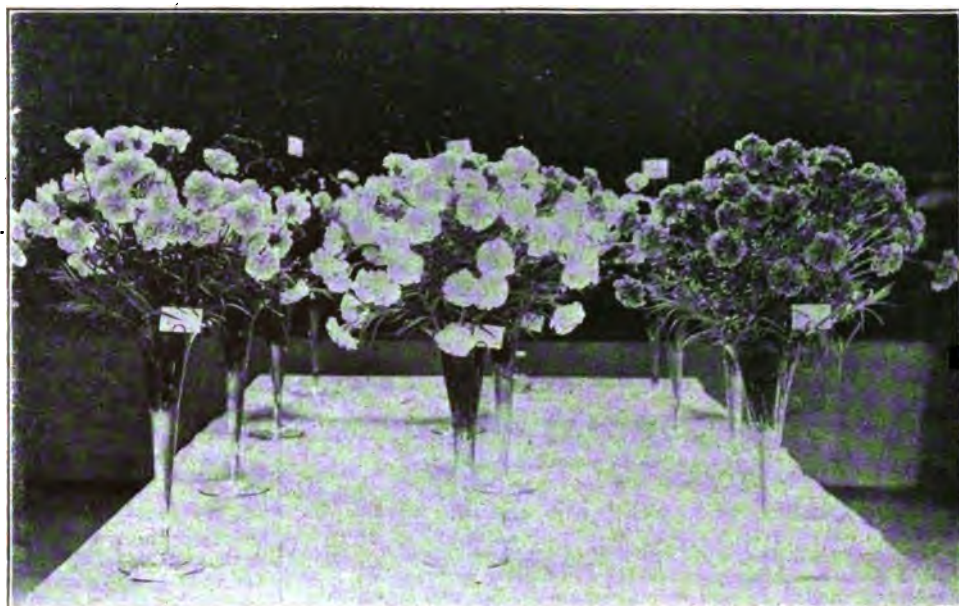
—P. L.



A Glimpse at the Chrysanthemums in a Glasgow Public Garden.

Carnations.

The accompanying illustration shows the winning Carnations at the recent exhibition of the Massachusetts Horticultural Society held at Boston. These were staged by Mr. Peter Fisher of Enchantress fame, and were made up of the following varieties:—Mrs. Ian Harvey, Mrs. C. W. Ward, Beacon, White Perfection, Enchantress, and Rose-pink Enchantress. This was a magnificent lot, mostly all of the blooms averaging from 3in to 4in across.—W. McBrown, Langwater, Massachusetts.



The Best Vases of Carnations at Boston, Mass. (U.S.A.).

The cuttings should be inserted in small 60 or middle 60-pots as soon as you can get them from about the middle of November. Often the cuttings are very scarce in this month; but the advantage of early striking is that one can get an extra stopping, and thus securing a more bushy plant. The cuttings or pipings should be about 3in to 4in in length, inserted in a compost consisting of two-thirds loam, and one-third leaf mould, passed through a half-inch mesh sieve, with a liberal allowance of sand. A very suitable place to strike them is where a bottom heat of from 65deg to 70deg can be maintained. If there should be no suitable place for striking them in the houses, a little frame could be made according to the quantity you want. Some of the hot water pipes that pass unused for anything, beneath the ground near the wall, might be utilised. Remove the soil from off the main, according to the size of your frame, letting the woodwork right on the pipes, adding a temporary bottom to the frame of a few slates or boards, filling the remainder up with cocoanut fibre. Plunge the pots up to the rim in this and keep the cuttings close to the glass, so as to touch the top. I think a wise plan when putting the cuttings in is to dip them into some insecticide as a prevention from that little terror red spider.

Water the cuttings well in after insertion before placing them in the frame, and then plunge the pots. Keep the frame closed, taking off what moisture there is on the glass with a sponge morning and afternoon. Should excessive moisture arise in the frame, afford a little air until it has disappeared, and thus prevent damping. In about three weeks' time the greater part of them will be rooted, then admit air, gradually increasing for a few days, and then the pots may be taken out of the fibre and be placed on a shelf or on the stage. The temperature may be about 60deg to 65deg. They should be syringed once or twice daily, according to what the weather is like outside. As soon as they get well rooted in their cutting pots, they should be potted up into sixties, using a compost of two-thirds good loam and one part leaf soil. Pass the leaf soil through a half-inch sieve; also use equal proportions of old mortar rubble and wood ashes, with a liberal allowance of sand, adding a 32in pot of Bentley's Carnation manure, and a 60in pot of Veltha, to each barrowload of soil.

After potting they should be taken back to the same temperature, and as soon as the plants have become established in these pots, the points should be taken out with a sharp knife. Do not pinch, as I think the knife is the cleanest way. This applies to all stoppings. Afford air now at every favourable opportunity. The next move will be into 48-sized pots, using a similar compost as before, with the exception that the loam is of a more fibrous nature and coarser than at the previous potting. Pot firmly. The month of May is, I think, the best time for giving them their final shift. After potting, the plants should be placed on ashes in a frame, and be gradually deprived of heat.

By the beginning of July the lights should be taken off, as the plants will then stand the natural atmosphere. Continue to watch for red spider, as they will now stand outside until about the first week in September, when they should be removed inside, affording all ventilation possible for a time. Raise the temperature later to 50deg. Stopping, I think, is not advisable after about the third week in July. As regards manure, a little weak liquid cow manure and soot water is advisable, but the manure in the soil will almost carry them through until after the stopping; when one can commence feeding. Bentley's Carnation manure is very good, both as a top-dressing and in potting. For top-dressing, use about one teaspoonful to each plant about every ten days, until the flowers commence to open, then avoid strong feeding, falling back to

a weaker stimulant at intervals of once or twice a week.

A few varieties I think very good are:—Mrs. S. J. Brooks, white; Mrs. T. W. Lawson, deep pink; Enchantress, pink; Harry Fenn, dark crimson; Flamingo, scarlet; and Pride of the Market.—H. W. COOPER, The Gardens, Sandhurst Lodge, Wellington College Station, Berks.

One good Covent Garden grower, to ease this market, recently started sending cut blooms to Holland, with good results. Since then he has personally visited Amsterdam, Rotterdam, and the Hague. Now a regular market is being established, without in any degree neglecting his home supply. Apart from the fact of the venture being a profitable one, it helps this grower immensely in thus only sending to the London centre in bulk, according to the trade and prices.—S. C.

Hardy Plant Notes.

Anomatheca (or *Lapeyrousia*) *cruenta*.

A bright bit of colouring is given in summer and autumn by the flowers of *Anomatheca*, or *Lapeyrousia*, *cruenta* in the comparatively small number of gardens where this little Cape bulb is successfully grown as a hardy plant. It might be more frequently employed did the multitude only know of its rich carmine flowers and the freedom with which they are supplied for some time at a stretch. It has been long in cultivation, but there are few places where it can be seen in profusion and growing in that semi-natural fashion in which it looks its best. The writer had seen it occasionally, but never so bright as in the Trinity College Gardens, Dublin, where our departed friend, Mr. F. W. Burbidge, pointed out to him how much more brilliant the colouring is in shade than in sun. There it was scattered about as if naturalised.

The *Anomatheca*, for one prefers the more familiar name to the orthodox one, is one of those bulbs which suffer from just being on the border line between hardy and half-hardy bulbs. It will prove perennial in a dryish, warm soil in all the milder districts of the south, but it is not to be absolutely relied upon everywhere, and those who have it in seed would do well to save and scatter the seeds about in suitable places, such as by the walls of greenhouses or stoves, and in dry corners where the young plants would not be exposed to cold currents of air. In warm localities this is not necessary, and the seeds may be sown in almost any well-drained position. The best time to plant old corms of the *Anomatheca* is in spring. They may be placed about 2in deep, and will flower the same season if planted in March. In cold places they ought always to be lifted when the foliage becomes yellow in autumn and be kept free from frost until spring. The *Anomatheca* also makes a good plant for pots, and its cultivation is simple. Potting may take place in February, and after flowering the corms may be kept comparatively dry until February or March, when they may be repotted in sandy soil, with a little leaf mould or very old cow manure well rubbed down. This pretty Iridaceous plant grows to about 9in high, and in good groups or irregular masses gives a charming effect in its time.—S. ARNOTT.

An Old-fashioned Garden.

Looking back—far back—into the long ago, vividly there flashes up the sight and scent of an old-fashioned garden. Nothing exactly like it has been seen since, nor is it expected to see the like again; for it belongs to a past age, and a past generation. It was in passing a cottage garden, basking in a burst of sunshine, rare enough this year of curtained skies, that a subtle odour responsive to the sun-god's kiss, was caught in its flight over the low Privet hedge, and back flew the shuttle of thought in the loom of memory to that dear, old-fashioned garden of the long ago. It is strange, passing strange, perhaps mysterious, that of all the senses this one, the perception of perfume, has such power to repicture the long forgotten. But it has. Yet is there something even more mysterious, and that is a more subtle something, a something which cannot be put in words, coming only at rare intervals in the hurry and rush of to-day, when

"Our souls have dreams of a more glorious time
Than memory well can show,
Shadows and glimpses of a world sublime
We lived in long ago."

But it has something to do with flowers and with gardens, for both seem not only inextricably woven into our web of life, but to have some subtle connection with a longer past, and a more distant future. And, perhaps, this intuitive perception, if it can be thus called, is only for gardeners—those who spend their lives in communion with Nature. That revered contributor, who under the *nom de plume* of "D., Deal" so often and so ably started our "dear old Journal" on its annual trip with his New Year's address, more than once appeared, in reading between the lines of his message, to have had the same thought and the same feeling. For him the veil has lifted, but it is good to commune with him again through that sympathetic pen with its fraternal solicitude for the workers, as well as his evident passion for the work, and this but heightens these impressions which one can only hint at, however deeply graven, for they are too deep for words. Yet, is it this mysterious past, far back, and this intangible future, not so far off, perhaps, too vague for inclusion in the practical present?

"Why not, all life is change,
To those who truly hope naught is too strange."

But our old-fashioned garden is momentarily, again, very real. It had been cared for nigh on half a century by the same loving hands, for "the master" and "the mistress" had entered on their happy companionship at an early age, and with that the then new home. They all, which includes the garden, grew old-fashioned together, and were lovers to the last. And how they loved that garden! Never a year, probably, passed without some addition to it in the shape of roots or slips from friends, which all found sanctuary in it, and left it not, for the gentle mistress would point with pride to certain things she "set" the first year of her married life, and in the latest contribution find fresh joys and new sources of interest.

There were huge bushes of Lavender, and Rosemary, and Southernwood, the former with gnarled trunks which, like the veterans they were, had to be supported with crutched stakes, and these, it is remembered, were a particular source of anxiety to the "Mistress," shared by the "Master" as the latter prepared the crutches, and they both ministered to the pensioners dependent on their care. That these lovers of their garden were not orthodox gardeners goes without saying. There was the old Sweetwater Vine, for instance, which covered a sunny gable of the old-fashioned residence, a most picturesque object, but subject to no treatment advocated in the "Book on the Vine." Lateral growths, however, had been trained by "the Master" in the way they should go in order to make a kind of bower for "the Mistress," who not infrequently on a hot and busy day—all the hot days seemed busy ones in that garden—would rest, and perchance take an involuntary siesta. And what crops it bore that Vine. There were, of course, "good Grape years," and "bad Grape years"; to one of the former was due the "big bunch," which tipped the scale at 11½oz, and being so much above the average weight, which was about four bunches to the pound, was duly recorded on the wall. The produce was chiefly used for wine making, and it was the writer's privilege, then on the other side of the teen age, on various occasions to be treated to a very small glass, which was imbibed in very small sips with becoming solemnity and due appreciation, under the eye of "the Mistress." Not so with George, the one man, whose gardening duties were chiefly confined to the vegetable department, the remainder having something to do with a cow, the rhythmical swinging of a pump handle, until the water came out of a little spout overhead, and sundry domestic duties, at the finish of which at 11 a.m. found him at the kitchen window through which a very large mug of beer was handed out, and duly quaffed, to our unbounded admiration,

without any of those polite and profound intervals which the wine seemed to demand. Then with the double action of giving back the mug with one hand and wiping his mouth at one sweep with the back of the other, George was ready for his "vegetable" work, aided by further nourishment in the form of a very short pipe and "bit o' shag."

There was everything in that garden, and that everywhere. Such a profusion of Pinks, and Stocks, and Hollyhocks, and Roses, besides a multitude of annuals which were duly sown in Easter week. One could never forget that it was famous for its Chaney Asters, and as for double yellow Wallflowers, they were noted for miles around. Roses were everywhere where one would expect to find a Rose, and where one would not expect to find them too, as wherever the "Master" found a wild Rose breaking through the hedge which bounded the little paddock devoted to George's cow, he had a habit of taming it by inserting buds, and there they stopped and bloomed as only Roses seemed able to bloom in that old-fashioned spot. All the showier flowers were chiefly confined to fairly wide borders on either side of a long, central walk leading to the porched entrance, the latter towards the end of the year having, through its creepers, a kind of bird's nest appearance until the day came round for George to give it the annual trimming with the shears under the "Master's" supervision. The most vivid bit of colouring, certainly, was the foot-wide ribbon of blue Gentian which margined the borders in a very informal manner, such as would not be now tolerated in any up-to-date garden, the reason, perhaps, that one, now, never sees it at all. Among the more notable shrubs were two big Mezereon Daphnes, which were responsible each season for opening the fragrant feast in that old-fashioned garden. These were the pet aversion of George, and invariably referred to by him as "them nasty pizen Misseroons."

There was, too, in a warm angle of the house, mantled by a big Magnolia, a large scented Verbena, which on the approach of winter was comfortably swaddled up in bast mats, giving one the impression of furniture removing going on. But there had been no moving since the owners had gone in nigh on fifty years before, and was none until a black carriage waited at the gate, at which stood George wiping his eyes saying he had a "plaguey cold" as the silent, gentle "Mistress" was carried down the walk, between the borders of her beloved flowers, and the "Master," who followed, returned without her. Somehow, after that, that garden never seemed the same. George now took up most of the flower tending, and neighbours who were prone to discuss gardening topics with him could hardly fail to notice how persistent was that "plaguey cold" which had been so bad the day the "Mistress" went on her long last journey. Yet a few months and the honoured "Master" joined her. Then that dear, old-fashioned garden passed out of the writer's life.

"All things that we clasp and cherish
Pass like dreams we may not keep."

But its flowers and its fragrance are as fresh in memory to-day as then.—E. KNOWLDIN, Dalkey.

Diseases of Plants.

American Gooseberry Mildew.

This disease has given the Board of Agriculture a troublesome time. When they issued their first Order they were fully convinced of the necessity for the absolute destruction of diseased bushes as the only scientific way to stamp out the pest, and that the evidence in their possession had convinced them that any half measures, such as pruning and spraying, would be ineffectual. "On December 10 (as Mr. F. S. Salmon points out in 'The Times' of December 23) a new Order was issued, revoking the previous one. This new Order permits pruning and spraying as an alternative to destroying the diseased bush. This policy is unscientific, uneconomic, and ridiculous. No greater proof could have been given of the necessity that exists for securing that reform at the Board asked for by fruit-growers in 1905—viz., the creation of a special sub-department to deal with matters connected with the fruit industry. The fruit-growers of counties at present unaffected, such as Kent, Essex, Cornwall, Devon, &c., and the owners of private gardens, which are still practically immune, should unite at once to put pressure on the Board to secure the destruction of diseased bushes in the affected districts by the payment of some compensation. Success in stamping out this new pest depends upon two things—(1) the employment of scientific measures; and (2) the framing of these measures on an equitable basis so as to secure the co-operation of the grower. Gooseberry growers of this country are in all probability about to suffer the loss of hundreds of thousands of pounds in the next few years."

In reply to the above, also in "The Times," Mr. W. E. Collinge thinks "it is quite time such hysterical nonsense ceased."

Eighteenth Century Gardening.

Hardy Fruits.

The cultivation of hardy fruits in comparison with forced fruits progressed very slightly during this century. There was, however, in the espalier a marked improvement, the training and pruning of Pears and Apples *en espalier* being much advanced, the branches being given more space and fruit looked for as a result, which it was not always previously. The century had not far advanced when orchards enclosed by walls, which might more consistently be termed fruit gardens, became part of the garden scheme. While the walls were clothed with Peaches, Figs, Apricots, Vines, &c., the sides of the walks were bordered on each side with Apples and Pears trained horizontally, or rather the ends of the branches drooped slightly lower than the middle part, which, being arched a little, caused the branches to assume a curved form.

In these early espaliers each tree was trained separately, the branches being supported and tied to light posts. Later, kitchen gardens were furnished with borders of espaliers, on which the less strong growing Apples, such as Golden Pippin, were trained. Hitt (1755) introduced a method of training trees in spiral fashion, or perhaps it would be more accordant with fact to say that he described what already was a fashion. The management of the trees—best stocks, soils, time and method of planting, pruning, root-pruning, gathering, keeping in store—was exactly known by a certain number of practitioners, though perhaps, as at present, there was a number who did not trouble themselves to observe and act on good principles. Forsyth names about 300 Apples at the end of the century, which shows that in addition to Ribston Pippin, other superior varieties had been discovered since the century commenced. Of Pears the list of names is much shorter, and nearly the whole of the varieties are old. Gansel's Bergamot and Williams' Bon Chrétien are, however, eighteenth century sorts. Plums also appear to have remained stationary. The Apricot not only became a more popular fruit, but the varieties, which were only some five or six sorts in 1700, had increased to nearly two dozen by 1800. The Brussels and Breda were grown in the South of England, and standards and Apricots were also trained as espaliers as well as to walls. A west wall was considered preferable, because the trees were protected better from east winds than when on a south wall.

Of Plums, scarcely anything requires to be written. Coe's Golden Drop was the only variety of super-excellence added to the long list of varieties of Plums, of which the greater number have gone out of cultivation. We still grow the Green Gage, Winesour or Rotherham, Red Magnum Bonum, Orleans, Bullace, and Cherry.

Concerning Cherries, the only variety worth mentioning, which was added to the great number of varieties, is the Black Tartarian, introduced in 1796. May Duke, Morello, White Heart, and Black Tartarian, are perhaps the only varieties now cultivated.

Little need be said of Currants, which obtained nothing like the favour they now enjoy. In one of Galt's books the beginning of the custom of making jelly from small fruits is mentioned, and Black Currants were highly esteemed as a cure for sore throat. An old recipe mentions Black Currants bruised, steeped in whisky, which was afterwards strained and partaken of as a medicine as required.

Gooseberries, as we now know them, are a production of the century under review, there being some half dozen varieties only cultivated at its beginning. It is to one county alone—Lancashire—that the improvement of this fruit is due, though size, apart from quality, has long been the objective of the Lancashire Gooseberry cultivators. I cannot discover when the cultivation of the Gooseberry was made a specialty, but in 1800 there were 500 varieties cultivated. Warrington Red, Whitesmith, Langley Green, are prize sorts, which go back into the eighteenth century. An Edinburgh nurseryman in 1774 names among other sorts these, which are still cultivated for their superior qualities:—Hedgehog, Champaign, Iron-monger, or Blacksmith. Green Gaskins appears in an earlier Scottish work on fruit culture; and Early Sulphur is also a variety of this period.

The Strawberry could hardly have been much esteemed. Four sorts only are named by Bradley and by Switzer—the Scarlet, the Hautboy, and Red and White Wood. Switzer appears not to have been even acquainted with the kinds he names, which are mixed. In 1800, Forsyth does not mention the Strawberry in his book on fruit culture. When Bradley wrote, the Strawberry was planted in beds with beans, &c., in the alleys; and Gooseberries and other dwarf fruit bushes among the plants to shade them from the sun and to gain a little extra return from the ground. In 1727, Miller introduced plants of the Chili Strawberry from Holland, and this was long cultivated as two varieties, the fruiting and non-fruiting. In Miller's Plates (1759) the Pine Strawberry is illustrated. It

was at that date established in the country, Miller's stock having been received from Amsterdam. The Alpine Strawberry is mentioned by Miller in 1768. The Globe and the Bath Strawberry are noted a little later, both large fruited sorts, but not well flavoured. The Globe was a white-tinted variety with a flush next the sun.

In 1718 Bradley describes a method of obtaining fruit in autumn. The leaves and flower stems were cut off "just before the blossoms open." Other cultivators mention the need of a surface dressing to be applied after this rude treatment. Bradley also notes how they were forced to bear in March by planting strong roots in pots and putting them on a gentle hot-bed in January; but Bradley's remarks on this point partake of the apocryphal. Later, however, Strawberries were forced, and quite generally. The method was to prepare runners at the usual time, planting three or four in a 10in or 12in pot, in which the plants were kept all the next summer without fruiting, and forced any time after the Christmas following. Peach houses, vineries, Pine stoves, &c., were employed to forward the plants, and the "Scarlet" was the sort usually grown.

Raspberries before the end of the century had been much improved, and eight or nine varieties were in cultivation. Quinces, Barberries, Walnuts, Chestnuts, Elder, Walnuts, and Filberts, are other fruits that were also cultivated more or less.—B.

Mistletoe.*

Probably no plants are better known in England than those lending their Christmas and New Year brightness to our streets and markets, in our homes and churches; and it may be said that few, if any, plants have had their histories more frequently served up for popular edification than the Holly, the Ivy, and the Mistletoe, all going over precisely the same ground, giving the same illustrations, and the same quotations, and meeting with the same indulgent readers. It is not our intention to add one more to the goodly list of wanderers across the beaten track, and yet we are going to chat for a few moments about the "mirth-provoking Mistletoe," viewed from a somewhat unusual, and some may think unseasonable and belated point of view.

In the first place the Mistletoe, in Druidical times, had no relation to Christmas, but with the new year sacred solemnities of the Druids, and these we cannot name without thinking of our woods and national Oaks, the Celtic word for Oak being *dru*, and is the same word with *drus*, which signifies an Oak in the Greek language. The things are inseparable from our imagination, yet Cæsar nowhere makes mention of the sacred groves and the reverence paid to the Oak, which make so great a figure in the other accounts of Druidism. Seneca, the philosopher, says: "If you come to a grove thick planted with ancient trees which have outgrown the usual altitude, and which shut out the view of the heaven with their interwoven boughs, the vast height of the wood, and the retired secrecy of the place, and the wonder and awe inspired by so dense and unbroken a gloom in the midst of the open day, impress you with the conviction of a present Deity." Pliny informs us that the Oak was the tree the Druids principally venerated, that they chose groves of Oak for their residence, and performed no sacred rites without the leaf of the Oak. Pomponius Mela, the geographer, describes the Druids as teaching the youths of noble families that thronged to them in caves, or in the depths of forests. When Suetonius Paulinus made himself master of the Isle of Anglesey, in A.D. 61, he cut down the Druidical groves. These groves, says Tacitus, were "hallowed with cruel superstitions, for they held it right to stain their altars with the blood of prisoners taken in war, and to seek to know the mind of the gods from the fibres of human victims."

But the most remarkable of the Druidical superstitions connected with the Oak, not the groves, was the reverence paid to the parasitical plant called the Mistletoe, when it was found growing on that tree. Pliny has given us an account of the ceremony of gathering this plant, which, like all the other sacred solemnities of the Druids, was performed on the sixth day of the moon, probably because the satellite has usually at

* Some observations upon the Mistletoe by Prof. Sir Ray Lankester appeared in "The Daily Telegraph" on December 21. That writer observes: "A careful inquiry some time ago resulted in the discovery of only seven Oaks in all England on which Mistletoe was growing. The Druids took their sacred Mistletoe from the sacred Oak tree on account of its rarity. A red-berried Mistletoe (*Viscum cruciatum*) is parasitic on the Olive tree in Spain, North Africa, and Syria. Curiously enough, though the white-berried Mistletoe is excommunicated by the Western Christian Church on account of its use in pagan worship, the red-berried Mistletoe was gathered from Olive trees in the Garden of Gethsemane and in the enclosure of the Holy Sepulchre at Jerusalem by Sir Joseph Hooker. The red-berried Mistletoe was successfully raised from seed on young Olive trees six years ago in this country by the Hon. Charles Ellis, of Frensham, near Haslemere, and was figured at that time by Hooker."

that age become distinctly visible. The festival of gathering the Mistletoe was kept always as near to the 10th of March, which was their New Year's Day, as this rule would permit. The Druids also, according to Pliny, believed that God loved the Oak above all other trees, and that everything growing upon that tree came from heaven, and there is nothing they held more sacred than the Mistletoe of the Oak. Whenever the plant was found on that tree, which it rarely was, a procession was made to it on the sacred day with great form and pomp. First two white bulls were bound to the Oak by their horns, and then a Druid clothed in white mounted the tree, and with a knife of gold cut the Mistletoe, which another, standing on the ground, held out his white robe to receive. The sacrifice of the victims and festive rejoicings followed.

Virgil, the poet, has been thought to intend an allusion to the old religious rite of the Druids by the golden branch which Æneas had to pluck to be his passport to the infernal regions. Indeed, he (Virgil) expressly likens the branch to the Mistletoe:—

As in the woods, beneath midwinter's snow,
Shoots from the Oak the fresh-leaved Mistletoe,
Girding the dark stem with its saffron glow.
So spring the bright gold from the dusky rind,
So the leaf rustled in the fanning wind.

The sacredness of the Mistletoe is said to have been also part of the ancient religious creed of the Persians, and not to be



Begonia Rex, var. Fearnley Sanders,
(See "GARDEN GLFANINGS.")

yet forgotten in India; and it is one of the Druidical superstitions of which traces still survive among our popular customs. No Druidical groves, so far as determined, now remain in Britain, though within little more than a century ancient Oaks were still standing around some of the circles of stone set upright in the earth, which are supposed to be the temples of the old religion. "In the parish of Holywood, in Dumfriesshire, there is such a temple, formed of very large stones, enclosing a piece of ground about eighty yards in diameter, and although there are no trees on the spot, there is a tradition that there existed many trees in the last age, and many roots of trees have been dug out of the ground even in our own day" (Sinclair, Statistical Account of Scotland). These sacred enclosures seem in their perfect state to have generally consisted of a circular row or double row of great stones in the central open space (the proper *lucus*, or place of light), and beyond these, of a wood surrounded by a ditch and mound of earth. The sacred grove appears to have been usually watered by a holy fountain. The reverence for rivers or streams, springs or wells, is another of the most prevalent of ancient superstitions, and it is one which, having, along with many other Pagan customs, been adopted, or at least tolerated, by Christianity as first preached by the Roman missionaries, and being, besides, in some sort recommended to the reason by the high utility of the object of regard, has not yet altogether passed away. The holy wells, to which some of our early monks gave the names of their saints, had in many instances been objects of veneration many centuries before; and the cultivation of the country, or the decay from lapse of time, which has almost everywhere swept away the antique religious grove, has for the most part spared the holy well.

The Mistletoe, as we have shown, had no connection with,

or relation to our present time winter solstice in Druidical times; but the parasitical plant celebrated on account of the religious purposes to which it was consecrated by the ancient Celtic nations of Europe, particularly when it was found growing on the Oak, still retains a strong hold on the populace of the British Islands, few persons not observing the custom to hang up branches of this plant in their homes at Christmas, and especially for the New Year festivities, thus transferring the Druidical custom from March to January, or even Christmas, and even continuing the religious as well as the festive sides of the ceremonies of the Druids on Christianity lines.

The Mistletoe is rarely found upon the Oak, I not having seen an example, though there are records of its being found on the Oak in this country, as at Godalming, at Gorke, and St. Dials in Monmouthshire, Eastnor Castle, Herefordshire, and in the neighbourhood of Usk, therefore the proclivities of Mistletoe for the Oak are most pronounced in the direction of the Druids' holy isle (Anglesey). Specimens have been seen on Horse Chestnut, Wych Elm, Mountain Ash, Maple, Acacia, Laburnum, White Poplar, Black Poplar, Hazel, White Beam, Sallow, Larch, Ash, Service, Elm, and common Laurel. It, however, is most commonly met with on Lime, White Thorn, Crab, and Apple trees; indeed, the "branch of spectres" still covers the Apple orchards of Glastonbury, which, as the Isle of Avelon—Isle of the Apple—was a stronghold of Druidism. And possibly it might be induced, in such a sheltered and favourable situation, to strike root upon the branches of the Oak, as it does very freely on those of the Apple, when the viscid pulp of the fruit is smeared upon them.

The Mistletoe was also formerly held in high repute as a medicine, and, as in Druid times the plant was held sacred, so the preparations were regarded as gifts from heaven as remedial agents. In 1719 Sir John Colbatch published "A Dissertation concerning Mistletoe; a most wonderful remedy for the cure of convulsive distempers." "I have it upon my spirits for weeks past," he says, "that it would be highly criminal to me to let another Mistletoe season pass without informing the world what a treasure God Almighty has every year presented to their view"; and he proceeds to show in how many and various ways it may be employed for the benefit of the human race. The "Mistletoe of the Oak" was regarded as the most efficacious, but Sir John says: "Suppose the Mistletoe of the Oak does surpass that of all other trees, yet from ten years' large experience I find the ordinary Mistletoe to be the most noble medicine I ever knew"; and he even places its virtues above those of the "Jesuits' Bark." "By the powder of the true Mistletoe of the Oak, given as much as would lie upon a sixpence, early in the morning in black Cherry water, or even in beer, for some days near the full moon, epilepsy was cured. Ordinary Mistletoe was equally efficacious in agues, St. Vitus' Dance, and in children's diseases; it seems to have worked as many wonderful cures as any patent medicines and faith-healers of modern times. The plant was to be gathered at the end of December, the leaves, berries, and very tender twigs to be laid over a baker's oven when there was a constant gentle heat, and then made in a very fine powder, and afterwards kept close and dry. Over-drying or scorching was also to be avoided, and the larger stalks were to be carefully dried and preserved for decoctions and infusions. Tincture of Mistletoe was a later discovery of Sir John Colbatch, and of the use of the berries he says: "I have not yet dared to rob the Mistletoe of its berries, but from some observations I have made of them I am inclined to think they are the greatest restorers of decayed nature, swallowed whole as they are, either green or dry, and a draught of generous wine to be drunk after them, ten or a dozen, every night at going to bed."

The older writers greatly advocated the medical uses of Mistletoe, and Sir John Colbatch does little more than give the weight of his own support to views which had been already expressed, and which had received the support of John Ray, who mentions it as a specific in epilepsy, and as useful in apoplexy and giddiness. Dr. Bull, however, says that "the real properties of the Mistletoe are those of a slight tonic," and is not employed in any way in modern practice, except as far as animals are concerned. In some parts of the country Sir Thomas Brown mentions a common practice in his time, that of giving "a branch of Mistletoe to the cow which calves first after New Year's Day, it being supposed that this will give luck to the dairy throughout the coming year"; and Dr. Bull states that he learnt from a woodman near Ledbury, that "a piece of Mistletoe from the haw, chopped in pieces and given to a cow after calving will do her more good than any drench you can give her." It is also given to sheep after lambing, and the berries are sometimes administered to them as a purgative, but the chief use of the Mistletoe in present times is for decoration and merriment.—G. ABBEY.



Begonia Mrs. Bedford.

A new Lorraine type of Begonia named Mrs. Bedford was recently exhibited by Mr. James Hudson, Gunnersbury House, Acton. It is a strong-growing sport from Agatha, partaking largely of the socotrana character of leaf and flower. The floraison, however, was decidedly sparse.

Spraying.

When your orchard and garden are once started and growing, said Mr. W. Wheeler before the Boston (U.S.A.) Florists' Club, the spraying and pruning of your trees and thinning of your fruit will largely determine your success or failure in producing good specimens. In these days of insect pests and blights, spraying is as important to the growing of good clean fruit as the disinfecting of a room after a case of small pox or scarlet fever, to the preservation of the public health. Spraying should be done at least three times in the year—November for scale, with Scalecide or lime, sulphur and salt; May, with Bordeaux and arsenate of lead in combination, for blight and insects; and late July, for late fruits, with Bordeaux alone. Another spraying can be given in March or April with benefit.

The Cricket-bat Willow.

As an example of subjects of general and popular as well as scientific value in the Kew "Bulletin" (observes a writer in our greatest national daily newspaper, "The Times"), I may mention an article in No. 8 for 1907 on "The Cricket-bat Willow," by Mr. W. J. Bean, assistant-curator. The manufacture of cricket bats from Willows constitutes an important industry; but hitherto no one had taken the trouble to identify what was known to be the best kind of Willow for this purpose. The supplies of this "best kind"—which Mr. Bean has discovered to be *Salix alba* var. *cærulea*—that is to say, a variety of the best known species commonly called "the White Willow"—are so limited in consequence of the large demand for it that a Nottingham firm offered £40 for a single tree, and Mr. Bean was recently informed by the agent of a large estate in Essex that he had declined an offer of £1,500 for the best 100 Willows on the estate. A full page illustration of *Salix alba* *cærulea* accompanies the "Bulletin" article on the "Cricket-bat Willow," as also one of the species—*Salix fragilis*, the "Crack Willow," used for making inferior and "cheap" bats.

Begonia Rex var. Fearnley Sanders.

The Royal or Rex Begonia is an Indian species, and the parent of many of our ornamental-leaved varieties. In the year 1903 a St. Albans firm introduced two hybrids, named respectively His Majesty and Our Queen. These were the result of crossing B. Rex and B. Bowringiana. Whether the latter parent has been used in obtaining the variety Fearnley Sanders, illustrated, I am not aware. If B. Bowringiana was employed there is little or no evidence of it in the hybrid. As an ornamental foliaged Begonia Fearnley Sanders is in the forefront. The greater portion of the upper surface is silvery-grey, the markings in the centre dark green, while those round the margin are rich emerald green. On the under side the prominent ribs are red, the leafy portion being light green flushed here and there with red. The Rex Begonias thrive best in the moist atmosphere of a warm greenhouse. The soil should consist chiefly of leaf mould and peat. In addition to their value as pot plants they are very ornamental, associated with ferns in pockets on the back walls of warm houses, and in the lightest positions under the stages. Plenty of young plants can soon be obtained by cutting the prominent ribs on the under side of the leaves in a dozen or more places, and laying them on the fibre in a propagating frame.—KEWENSIS.

Gillenia trifoliata.

Gillenia trifoliata is a native of the middle United States, and belongs to the natural order Rosaceæ. It is a hardy herbaceous plant too little known. From the end of May to early August the plants are handsome with their butterfly-like white flowers, with persistent coral red calyx. In the centre or middle row of mixed herbaceous plant borders, in groups of from five to six, they are seen to advantage, and grow from 2ft to 3ft high. If planted in a fairly moist soil in partial shade they make a grand show, retaining their freshness longer than when planted on a sunny border; propagated by division.—W. L.

Nægella Reine de Neiges.

The genus *Nægella* is closely allied to that of *Gesnera*, in fact, some botanists have included it in that genus. From the five or six species of *Nægellas* many beautiful hybrids have been raised, principally on the Continent. The plants are valuable



Nægella, Reine de Neiges.

as decorative subjects, both foliage and flowers being highly ornamental. The velvety leaves in many of the hybrids are richly coloured, crimson or mottled. The terminal racemes of drooping flowers vary in colour and markings. The subject of the illustration has snow-white flowers, with a faint yellow blotch in the throat. *Nægellas* thrive in a rich open compost consisting of fibrous loam, peat, and leaf mould in equal proportions, adding plenty of coarse sand. Only moderately firm

potting is advisable. They require plenty of heat and a moist atmosphere during the growing season. By starting them at intervals during spring and summer, a succession of flowers can be readily obtained during autumn and winter. *Nægellas* are propagated by the increase of the catkin-like stolons, or by laying mature leaves on the fibre in the propagating frame. Single plants may be grown in 5in and 6in pots, or three plants in pots 7in in diameter. When the foliage dies down the pots should be laid on their sides under the stage in the greenhouse till the season for starting, when all the soil can be shaken off and the stolons started in shallow boxes or singly in small pots.—D. D.

Zauschneria californica.

This is a hardy herbaceous Californian plant of decorative merit, and belongs to the natural order Onagraceæ. On the rockery or in the borders it is most showy, the scarlet trumpet flowers being produced on racemes from July to September, forming compact and bushy plants from 1ft to 15in high. It requires a sandy loam, well drained. Another very desirable plant for the more moist portion of the rockery and where a little shade can be given, is *Spigelia Marilandica*, or the Maryland Pink Root, a rare plant from North America, and quite distinct. The habit is slender in growth, with stems about 1ft high, bearing dainty sprays of Cuphea-like flowers of a brilliant crimson, with yellow interior. It delights in a deep sandy soil, with a good proportion of peat, loam, and leaf mould well mixed.—W. L.

Horticultural Associations of the United Kingdom.

XVII.—GUILDFORD, WOKING, WEYBRIDGE, AND ADDLESTONE SOCIETIES.

BY the courtesy of Mr. G. Carpenter, head gardener at West Hall, Byfleet, Surrey, the residence of Mr. and Mrs. F. C. Stoop, we are privileged to reproduce a photographic group of the gardeners to belonging to various horticultural societies in that neighbourhood. It will be observed that on this occasion we have to include several associations within the limits of these few notes. Probably we ought to have reproduced the photograph as a subject by itself, apart from the others of the series under which we have placed it, especially since we have no direct store of facts about any one of the four societies whose members are represented in the picture. But while we write of these several societies collectively in the present instance, we trust this will not preclude us from giving each an individual notice in time to come.

The interest that is manifested in the educational work of gardeners' mutual improvement and debating societies is a steadily increasing quantity. No less an authority than the Royal Horticultural Society, as we have lately seen, has turned its consideration to this phase of gardening activity, and has published a scheme for the federation of gardeners' mutual improvement societies, whereby each may help the other, or at least, the weaker bodies may obtain direct assistance, and the more lusty receive encouragement and suggestions. We do not know whether any of the four associations under notice have "federated"; but as the fee for union is a small one, and as they are within easy reach of Vincent Square, Westminster, it would seem directly to their interest to do so.

Occasionally we receive reports of the Guildford Gardeners' Society, and in that region of good gardens this society cannot be other than well supported. It is gratifying to know that so many readers of the *Journal of Horticulture* attend the meetings, which we know to be so from several letters that have appeared in our Young-Gardeners' Domain. Woking, too, is, and has for long been a centre of high-class gardening, both private and commercial. Woking is not far from Bisley, that famous heath where the National Rifle Association's prize firing is conducted. Weybridge, too, is another spot in this classical gardening area with several illustrious names in horticulture, and Wisley is within a few miles of this pleasant town. Lastly, Addlestone needs no introduction, for other horticulturists are here also, who have obtained wide-spread fame.

So near are all these places to one another that on the invitation of Mr. Stoop, 150 members from the four societies gathered at West Hall one day in summer. Our photograph shows them in the Dutch garden at that place. Of this number, fifty-two, we believe, came from Guildford.

Entomological Notes.

Belated Butterflies.

Just now the insect world with us is in a condition of repose. The fliers and crawlers, so numerous, often troublesome during the summer season, have vanished from view. Myriads beyond counting of our garden friends and foes died off at the approach of winter, but Nature has made provision for the re-appearance of all species next year. The majority lie unconscious in the egg state or in the pupa condition, others are sleeping as perfect insects, or in the larva and caterpillar stage. Some of these caterpillars eat nothing through the winter; others, living amongst low herbage, are believed to eat occasionally when the weather is mild. Caterpillars living on the Continent frequently fare better. If the autumn is warm they manage to feed up, attain their full size, and enter their chrysalis state before winter. In Britain many hatched in July or August live on till April or May. This is a notable fact, that hibernation has its perils for these belated caterpillars. Some of them, not much hidden, are devoured by birds, and especially if the winter is a mild one. Though it may seem surprising, it is yet true that mild, damp weather kills more hibernators than a dry frosty season. Caterpillars have been found actually frozen—they clinked in a tin box like little stones, but they revived gradually in spring.

These caterpillars might certainly be supposed to come off

best in winter that weave a silken covering for themselves, or hide under bark, or get protection somehow. We have no native caterpillars now hibernating about gardens. The black veined white used to occur upon Hawthorn hedges, but the species has become very rare and local. While still small in autumn, each brood makes a compact structure, apparently waterproof, and within it the caterpillars remain closely huddled together till the returning warmth makes the buds expand. Kohlar thinks the species can stand the most inclement weather, but we have a doubt about this, seeing how very scarce it is now in Britain. Then hibernation is part of the life-history of the fritillaries, chiefly woodland insects. None of the fritillary caterpillars seem to eat during the winter, and settle down early near the roots of plants, or under fallen leaves, spinning a few threads, not for shelter, but to secure a firm foothold. But the caterpillars of the greasy fritillary (*Melitæa Artemis*) are social, and make a small compact web amongst herbage, under which they sleep huddled together. Two more small species have the same habit.

A troublesome caterpillar very familiar to us is a hibernator, though when the species is well looked after in the summer and autumn not many will be left to live through the winter. The caterpillar of the Currant moth resembles the mature insect in colour, being mottled with black, yellow and white after feeding on Gooseberries and Currants a little while in the autumn, but doing trifling damage then. Going into winter quarters some of them remain on the bushes, sheltering themselves under a leaf fastened down by silk; some, more artful, descend to the earth, hiding under stones and grass; a party has been found amongst empty flower pots. Pruning the bushes, which should be done early, clears many of them, and forking the earth round the bushes destroys others, especially if some manure is applied. The pupæ are conspicuous on the twigs about May, and should be looked after. Occasionally, when we happen to look at a Primrose leaf in winter we discover a small caterpillar clinging closely to the midrib. This will, if left alone, produce the pretty silver ground carpet (*Melauippe montana*), chiefly creamy-white, with a grey band and a few black spots. The caterpillar is of some shade of brown, having bright red and black markings; it begins to feed early in the year, being full grown by the end of March. In woods and gardens, wherever Primroses grow, this carpet moth flies on summer evenings, sometimes taking an excursion by day.

The large pale moth called the swallowtail, or *Ourapteryx sambucata*, flits over our gardens during June and July, and is easy to capture if wanted, but it is not abundant enough to be a pest. The caterpillars emerge soon after the eggs are laid, yet do not manage to attain full size before the autumn. A snug retreat is sought under loose bark, a hole in a tree trunk or wall, and there they abide till May comes again. Named after the Elder, the insect is found on many other trees or plants. It feeds on several fruit trees, Honeysuckle is a favourite, and a variety of herbaceous species, including Forget-me-not. Resting elevated on a twig, this caterpillar nearly resembles a bit of stick, being brown in colour and humped. Such a mimicry is common amongst the caterpillars of the thorn moths; it is possible that by this means they escape the notice of birds if quiescent. Some of these are frequently seen in gardens; the moths are much fascinated by a bright light, and fly at it desperately. This enthusiasm has made the moths scarce about suburban London. The caterpillar of the August thorn (*Ennomos angularia*), a reddish-grey creature, well humped, has been taken hibernating on Elm and Lilac, unprotected.

Nobody can fail to admire those pretty green moths called the "emeralds," of different tints of green. A prize for entomologists is the handsome woodland species, called the large emerald; it is on the wing during June. After feeding a few weeks, the caterpillar, while quite small, sleeps upon a twig of the Birch, slightly sheltered by a faded leaf, and wakes up when April comes, to attain its full size. Smaller species of emerald moths are common in and near gardens, but the caterpillars are not mischievous. The small emerald has wings of a most lovely green, and flies in July. Probably it got the Latin name of *Judis vernaria* from the appearance of the caterpillar upon the Clematis during the spring after hibernation. Still

less is the little emerald (*J. lactearia*), also of a delicate green hue, with white lines; its caterpillar I have taken off Hawthorn hedges, and it has been found on Roses. Amongst Ivy through the winter hides the caterpillar of the willow beauty (*Bramia rhomboidaria*), nibbling the leaves when the weather is mild.

We might suppose that hairy caterpillars were specially fitted to stand the changes of the seasons, and it is a fact that amongst the winter species are several well coated. Still, it has been thought some of the hairy caterpillars do not get through the winter any better than the smooth ones. Birds seeking insects must be desperately hungry to swallow a hairy caterpillar, unless indeed one was found rolled up, and swallowed like a bolus! Familiar to us is the caterpillar of the great tiger moth (*Arctia caja*). It might be even more plentiful than it is, since each female is stated to lay about 500 eggs. But this showy moth is slow of flight, and as it wanders about often by day, it is likely to be seized by a bird with its un-

Notice of Book.

STUDIES IN PLANT AND ORGANIC CHEMISTRY, AND LITERARY PAPERS, by Helen Abbott Michael (with biographical sketch). The Riverside Press, Cambridge, Massachusetts, 1907.

Herein we have a beautifully written biography of a gifted lady, unhappily deceased, who was born in Philadelphia on December 23, 1857. No story could be more excellently told than this short record of some portions of her life, telling, too, of her European and Eastern travels and her visits to famous scientists at important universities. Her quest was the acquisition of knowledge; for though her education had been most liberal, she, unlike the vast majority of women, was inspired to



Members of the Guildford, Woking, Weybridge, and Addlestone Societies.

hatched progeny. We seldom notice it in autumn, but after hibernating amongst the grass or herbage it feeds on all sorts of garden plants, occasionally climbing trees, conspicuous by its long glossy hairs. Sometimes when cutting grass in winter growing near a hedge we disturb a partly-grown caterpillar of the drinker moth (*Odonestis potatoria*). It is well fitted to withstand the cold, being shaggy even to its toes. Its colours are beautifully varied, and it feeds till May, when it makes a curious shuttle-shaped cocoon. Then the small goldtail caterpillar has a plan of its own; before winter comes it spins a loose cocoon on some Hawthorn twig, within that a close cocoon of silk, where it stops till the buds are bursting.

Upon the crowns of *Chrysanthemums* lives now the greenish-brown, dotted caterpillar of the well-known angleshades moth. It appears to feed at intervals during the winter months, but does not change to a chrysalis till April. We have a British moth called the Old Lady (*Mania maurea*), perhaps from its rather sombre colours, or its habit of hiding in houses. Its caterpillar lives on various fruit trees in the autumn, but descends to the ground for the winter months. We have found it on Strawberry leaves about May, a leech-like caterpillar, with a small head, a curious pattern on the back.—ENTOMOLOGIST.

try and emulate the work of the most advanced men, and to destroy the traditions that would have us believe that original research in the realms of science can be accomplished by men alone. Fifty years ago that view, we venture to think, was prevalent. To-day it cannot be denied that women have brains, and that they have also courage and persistence for hard mental employment.

We can only briefly and insufficiently allude to the book before us. The biographical pages number 107; and following them appear fifteen papers, these being the records of Mrs. Michael's studies in plant and organic chemistry. Some of the papers obtained an international recognition, particularly, we believe, her earlier one, "A Chemical Study of *Yucca angustifolia*." Four of the papers are here printed in German. Mrs. Michael was also literary, and besides some beautiful poems of hers, the reader has superior fare in the four essays on Science and Philosophy in Art; the Drama in Relation to Truth; Woman and Freedom in Whitman; and the Conception of Truth among the Greeks and in Browning.

This gifted lady graduated at Tuft's Medical College with the degree of Doctor in June, 1903. She died at Philadelphia in November, 1904.



The December Moth.

With reference to your figure and notes on page 585, though specifically named from the Poplar, the caterpillar feeds on various trees, often on Oak and Elm. It comes out winged in November as well as December, but has the peculiarity of sometimes remaining in the chrysalis state for three or even four years.—ENTOMOLOGIST.

Winter-flowering Malmaisons.

I notice in your issue of December 19 some remarks by Mr. Usher, of Ranston House Gardens, where he states he took especial notice of the Malmaisons which I exhibited at the Royal Botanic Gardens, London, on December 11. Mr. Usher is very much in error when he says, "That there was hardly a plant in the whole group that had two flowering growths." Will Mr. Usher be surprised to learn that the exact number of Malmaison plants in the group referred to was ninety, and of blooms actually open 162, with over 200 buds? Moreover, we have cut about 300 blooms from these identical plants since the 1st of last October; and if Mr. Usher had looked a little closer he must have seen this, as the stems were there in evidence. During the same period, i.e., since the 1st of October last, we have cut altogether over 600 fully developed blooms, and shall continue to cut from this house till May or June. We then hope to have a good display from a batch of plants grown in the usual way. Much as I admire winter-flowering Carnations, of which we grow a good number, I think I am right in saying that the Malmaison holds the premier position at any time of the year.—A. GRUBB, Porter's Park Gardens, Shenley.

In the issue of your valuable paper for December 19, Mr. Usher, of Cranston House Gardens, makes some remarks on the group of Malmaison Carnations exhibited by Mr. A. Grubb, of Porter's Park, Shenley. Having visited these gardens at different periods, I have always been surprised, especially during the winter months, at the perpetual display of Malmaison blooms. As is well known, Malmaisons are very bad forcers, but Mr. Grubb appears to be able to flower them at will. Princess of Wales appears to be the favourite variety, but I have never seen Maggie Hodgson grown to such perfection as here.—B. H. S.

The Merits of Apples.

In reference to the remarks made by "H.," I do not think either that he sees eye to eye with me concerning my observation as to insect pests. My allusion was, of course, ironical for the grower who neglects thinning of fruit clusters in a glut, and was not meant as a disquisition on insect pests, although a grain of truth seems to be recognised as prevailing in my little bit of fun. As to planting grafted trees to a point below or above the junction, do not the supplementary roots from the graft in course of time overcome the original stock and its benefit? I met Mr. Chas. Ross at the Royal Horticultural Hall recently, and I took the opportunity to ask his opinion as to the Gravenstein. He replied in terms analogous to those made use of by Mr. Poupart, and only regretted that great fruitfulness did not accompany all the other splendid qualities of that variety. As to the element of human nature referred to by "H.," I am afraid that term is convertible to "human folly," in the absence of the disciplinary faculty which does not consider fruit growing as a serious business, and has not arranged for the best time to be chosen for all the stages required for success. Only fancy, if any manufacturing business were conducted on similar lines how great the chaos would be! In respect of the dozen reasons for preference of bush-grown trees over standards, I do not think that there is any reason why methods of western England should differ from those prevailing in the eastern. I name the following among a variety:—

- (1.) Earlier productiveness.
- (2.) Finer fruit from trees, the pruner of which knows his business, a result unobtainable from standards, which, of course, are out of reach without a ladder, which "human nature" is adverse to fetching.
- (3.) Windfalls almost unhurt, whereas especially large cooking varieties are greatly bruised from standards; so also need

of early picking is obviated, but a choice few forward ones can be picked any time with ease.

(4.) Attention possible to all sorts of operations concerning the requirements, not only pruning and ability to get at every branch without loss of time, but spraying, thinning, and half-a-dozen other things which "human nature" is prone to consider a bore, can be done with ease and completeness, with no excuse left for non-performance.

(5.) If man still continues to suffer from effects of "human nature," I suggest deft woman's fingers to attend to the whole of the operations, easily done with the assistance of short-steps, and including gathering the fruit straight from the tree into non-returnables, well sorted and graded.

(6.) Staking is unnecessary and, as a consequence, ends of broken stakes left in the ground are conspicuous by their absence, and no fungus can hurt roots and stem and cause the death of the tree or unfruitfulness.

(7.) Frail human nature might apply the clothes' prop to laden branches a little out of easy reach; bush growth relieves us of this fear. Although I only count up to seven I fancy subdivision would produce the full dozen.—H. H. RASCHEN, Sidcup, Kent, 14th December, 1907.

Folklore of Speedwells.

I am much obliged to "R. P. B." for his friendly comments on my article, and am quite willing to admit I may have fallen into errors regarding the Speedwells. Your correspondent thinks the original name of the genus was *Betonica*, afterwards corrupted or altered to *Veronica*. Is there any positive proof of this? By Linnaeus and Jussieu it is written as at present; the only other generic name I can find is *Alsine*, formerly given to the smaller Speedwells, which were thought to resemble the Chickweeds. Certainly, granted it were *Veronica* from the first, this would not show it came from the saint, and "R. P. B." considers somebody invented the fable to account for the name. But Dyer, Friend, and other writers on folklore, consider such a legend did exist, and it is not improbable. The supposition was common amongst our ancestors, that flowers and various parts of plants showed marks, or figures, having meanings. These have been explained by what is called the "doctrine of signatures." I was incorrect as to Paul's *Betony*, which is certainly *V. officinalis*, taking name, says Loudon, from Simon Pauli, an old Danish botanist, who praised the virtues of Speedwell tea. I should be glad if any reader could throw light upon the name "fluellon," formerly given to one (or more) species of Speedwell.—J. R. S. C.

The British Gardeners' Association.

I am somewhat loth to cross swords with such an able advocate of the B.G.A. as Mr. Divers, but still I cannot refrain from defending the position I have taken up, inasmuch as I honestly believe it to be the point of view held by three-fourths of the gardeners of to-day. Mr. Divers declares that I am in error when I "insinuate" that the B.G.A. is a trade union! I may be so; but what's in a name? We know that the railwaymen call their kindred society an association, and we know that their aims, shorter hours and better pay, are practically identical with ours; but do they obtain their ends by the method of peaceful persuasion as advocated by Mr. Divers? The recent crisis has proved otherwise. To obtain a fraction of their demands the railway operatives found it necessary to hold the threat of a strike over the heads of the directors. As Mr. Divers admits that we cannot compel our employers to accede to our demands, I fail to see how the policy of peaceful persuasion will prove sufficiently effectual, when those men, whose labour is absolutely necessary to the welfare of our country, found such a policy useless, and were compelled to threaten extreme measures.

I am in entire agreement with Mr. Divers' remarks concerning the miserable bothies and rate of wages to be found in some parts of the country, and, as he says, employers are not generally to blame. Now, if the remedy for these evils lies in becoming members of the B.G.A., why is it that so few head gardeners take it up with enthusiasm? The total membership now amounts to something over a thousand, and of these I understand that a large proportion belong to the public parks, gardens, and nurseries of the country, while the majority are under gardeners, with only a very small fraction, comparatively speaking, of head gardeners out of the thousands in the land. Is not the reason obvious? The head gardener knows only too well that if he disagreed with his employer and threw up his post to-morrow, there would be scores after it who would work for a pound a week, though perhaps not so ably.

Mr. Divers also takes exception to my ideas on the question of gardening being a luxury, and also my critic "C. M." in the Domain. "Stupid" is the expression used; but nevertheless the fact remains that gardens are not so indispensable as these gentlemen make out. I cannot elaborate the reasons why, for

lack of space, but I might mention that in the event of an employer in any district finding himself short-handed, he could obtain plenty of men for sixteen shillings per week capable of keeping his "drive, flower garden, and lawns" free from weeds and in fairly decent order; and I fancy fruit and vegetables can be obtained quite as cheap from the markets as they can be grown, though they lack the advantage of being home grown. With Mr. Divers' other remarks I am in sympathy, and his championship of the bothyites deserves the grateful thanks of us all. He will understand that I have not answered his article in an argumentative spirit, but to obtain that knowledge which is essential for the proper understanding of any subject. With "C. M.," in the Domain, it is somewhat different. I have answered his first paragraph of criticisms above as far as space will allow, but of the second I can only say it is rather uncharitable. It is casting a slur on young gardeners when he says that they grudge the 2s. 6d. entrance fee! In my short experience I have always found that journeymen, notwithstanding their poor pay, are always willing to recognise a deserving object, but I do not blame them for wanting to know whether the object is deserving or not. It is a bad plan to measure other people's corn by your own bushel. Permit me to thank you, Mr. Editor, for the space you have so kindly vouchsafed to me.—ALFRED BURTON, Brocket Gardens, Hatfield, Hertfordshire.

Prices of Potatoes.

During the summer months many conflicting reports were published concerning the Potato crops. Some stated that crops were good, and not badly diseased; others went to the opposite extreme, painted a very gloomy picture. Those who struck a mean between the two extremes have, as usual, been fully correct in their estimate. In deep light soils many heavy crops were produced; on stiff land crops have been much lighter than usual, and in many instances a large proportion of the tubers diseased. Again, cottagers who have saved their seed from the same stocks for many years, generally had a poor or badly diseased yield. Events have proved there was a considerable shortage in the British Potato crop, and £5 per ton has for some weeks been realised. At this figure there is certainly no occasion to hold them longer.—G. C.

Apple Trees and Canker.

Throughout the interesting and instructive articles appearing in the *Journal* on Apples and Apple tree planting, I have not noticed any remarks on the preparation of stations for the trees. During my long experience I have frequently come across the following practice in preparing these stations. A hole is dug, say 3ft in diameter, in all sorts and conditions of soil. The top spit of this is thrown on one side. The second spit if bad, is wheeled away. The whole is then filled with good soil, and the trees planted. The result is fine, strong growth, but after a few years the trees fail; canker sets in, and all appear to be going to the bad. In some good deep, and dry garden soils this may be good practice; but my remarks apply more particularly to shallow soils. Instead of excavating these holes for the trees to be planted in, I would recommend the following procedure: Dig no hole, but loosen the top soil and plant the trees on the surface, working in among the roots plenty of good loam, and cover all with about 6in. of good soil, leaving a mound a foot high, with a diameter of 3ft. or 4ft. Securely stake the trees, and mulch with short littersy manure; water them in dry weather if necessary. The growth at first from such trees may not be so gross, but the result in after years is far more satisfactory. If planted on grass land, the roots will run freely just under the surface of the grass, obtaining a plentiful supply of plant food, whereas if planted in holes, as above stated, the soil in them soon gets exhausted, and the roots penetrate uncongenial soil in search of food, and the effort soon shows itself in stunted and cankered growths.

The inception of canker in fruit trees I always compare to a man who partakes too much of what is not good for him. He soon shows it by eruptions and blemishes on the skin of his face. Remove the cause, and give him plain, healthy food, and he will gradually obtain a clean and healthy appearance. The same with fruit trees: the remedy is the same in both cases. I am not sure if there are two sorts of canker. I, and others too, no doubt have cured cankered trees by simply lifting them, or supplying prepared plant food to them. My opinion is that one sort of canker (if there are two) is first caused by eruptions of the bark by imbibing improper food. Fungi attacks these, and the disease then rapidly spreads. In your issue of December 12 there is a footnote at the bottom of the Apple selection showing sorts which are liable to this disease on clay ground. I say prevent the roots from getting into bad clay soil, even if it be by the old-fashioned way by putting a two-or-three-foot square stone flag under the roots, and feed the surface roots. I think canker will then soon disappear.—J. EASTER, Nostell Gardens, by Wakefield, Yorks.

Societies.

Royal Horticultural, Dec. 31st.

This exhibition on the last day of the year was not a great success. Only four long tables in the centre of the hall were filled. The attendance was fairly satisfactory, but there was no lecture. Very few certificates were awarded; indeed, only five altogether, one each from the Fruit and Vegetable Committee and the Floral Committee, the others being from the Orchid Committee. The two most interesting subjects to our mind were *Sarracenia purpurea* and the new perpetual-flowering Musk Rose Snowstorm. Cut sprays of the latter were shown by Messrs. Paul and Son, Cheshunt. They quite took us back to summer, their fragrance being delicious, and the semi-double white flowers are borne in ample clusters. The *Sarracenia* came from Sir Edmund Loder's garden at Horsham, per Mr. W. A. Cook, the gardener. The plant was some 2½ft in width and was in the most vigorous health, having a profusion of purple-green coloured pitchers. It had been lifted from the open ground on Monday afternoon, when the pitchers were full of ice. Yet, curiously, *Sarracenias* are not successful in many gardens. This received the award of a bronze Flora medal. Messrs. Paul also showed the new *Montanoa bipinnatifida*.

Fruit and Vegetable Committee.

Present: Mr. George Bunyard (in the chair); with Messrs. Joseph Cheal, Edwin Beckett, Alexander Dean, H. Parr, A. R. Allan, James Vert, Joseph Davis, G. Reynolds, Charles Foster, and Owen Thomas.

A cultural commendation was awarded the Hon. C. Harbord (gardener, Mr. Allan), Gunton Park, Norwich, for a dish of Pear President Barabé.

Messrs. James Veitch and Sons, Ltd., Chelsea, London, S.W., exhibited a table-length display of Apples and Pears, there being 140 distinct varieties of Apples and thirteen of Pears. Among long-keeping Apples were observed excellent examples of Brabant Bellefleur, Beauty of Stoke, Peck's Pleasant, Calville Malingre, Duke of Peaumont, Gooseberry Pippin, Allan's Everlasting, Easter Pippin, Newtown Pippin, Striped Beaufin, Lord Hindlip, Boston Russet, and Norfolk Beaufin. They also had a basket of a new variety named Langley Favourite. This is a medium-sized, conical Apple of bright appearance, and of the Cornish Gilliflower flavour. The latter variety and Bismarck are the parents. It was intended to combine the flavour and free-cropping qualities of the Gilliflower with those of Bismarck. The best dishes of Pears were Nouvelle Fulvie, Olivier de Serres, Marie Benoist, and Josephine de Malines. (Gold medal.)

A lesser display came from Sir Edmund Loder, Bart. (gardener, Mr. W. A. Cook), Leonardslee, Horsham, Sussex. This comprised twenty-two varieties of Pears and as many Apples, the best being: Apples, Traveller, Mère de Ménage, Blenheim Orange, Bismarck, and Ribston; and of Pears, Marie Benoist, Beurré Baltet Père, Beurré Alexander Lucas, and Duchesse de Namour. (Silver Banksian medal.)

Orchid Committee.

Messrs. Hugh Low and Co., Bush Hill Park, Enfield, contributed several fine *Cypripediums*, among them the Chardwar variety of *Cyp. Mrs. W. Mostyn*. This is large and handsome, the petals being deep chocolate brown mottled with bright green, the lower halves mainly green. The keel-shaped pouch is maroon-purple, tipped green. The large dorsal is a rich, distinct magenta edged with white and mottled with green. They also had *Cyp. Adrastus Marie*, with white dorsal, very heavily spotted with purple, the greenish petals also spotted, and the pouch brown. *Cyp. Mrs. Alf. Fowler* is very neat and smart, having some of the *Charlesworthii* in its composition. (Silver Banksian medal.)

Messrs. Cyphers, all the way from Cheltenham in this cold weather, had *Cypripedium Fascinator* (very pretty), *Cyp. Fairieanum*, *Calanthe Veitchii*, and C. Wm. Murray, *Odontoglossum crispum* (very fine pieces, grand flowers). *Laelio-cattleya Clive*, *Laelia anceps Chamberlainiana*, *Laelia autumnalis alba*, *Oncidium chrysanthum* and *Zygopetalum Mackayi* were all here. (Silver Flora medal.)

Messrs. Moore, Ltd., Rawdon, Leeds, sent *Cypripediums*—*Niobe* and *Boadicea majesticum* were the finest. (Silver Banksian medal.)

Floral Committee.

Present: Mr. W. Marshall (in the chair); with Messrs. Henry B. May, James Walker, Jas. Hudson, Edwin Mawley, T. W. Turner, Herbert J. Cutbush, Charles Blick, J. F. McLeod, Walter T. Ware, W. Bain, Charles Dixon, Arthur Turner, Jas. Douglas, E. H. Jenkins, W. P. Thomson, Charles E. Shea, George Paul, R. C. Notcutt, and R. Hooper Pearson.

Messrs. Jas. Veitch and Sons, Ltd., Chelsea, contributed the brightest exhibit in the hall, composed of a variety of sub-

jects so arranged in blocks of colour. Bright blue was supplied by *Coleus thyrsoides*. Some well grown plants of *Jacobinia coccinea* and its orange companion *J. chrysostephana* were included; while the yellow *Calceolaria Burbidgei* arrested attention. Some excellent plants of *Leonitis leonurus* were also grouped. Other plants were *Luculia gratissima*, the quaint *Pavonia intermedia kermesina*, and the winter-flowering *Begonias*, which included all the varieties they stage so well. (Silver-gilt Flora medal.)

Messrs. J. Peed and Son, West Norwood, sent a large table of alpine plants, also a collection of Cacti, and some nice plants of *Lachenalias*. The alpine plants consisted of *Saxifragas*, *Sedums*, and *Sempervivums*, all of which appeared quite happy in their quarters. There were between seventy and eighty kinds. (Silver Banksian medal.)

From Messrs. H. Low and Co., Bush Hill Park, came a nice collection of flowering plants. A group of *Euphorbia jacquiniiflora* was well flowered in 5in pots. Baskets of *Cyclamen Low's Salmon King*, *Victoria*, and a few examples of their Pioneer hybrids were in fine form. A group of *Otaheite Oranges* were also included. The rest of the exhibit consisted of *Carnations*, the best of them being *Mauvina*, *Winsor*, *White Perfection*, and *Rose Enchantress*; also a group of *Dracæna australis Doucetti*. (Silver Flora medal.)

Messrs. H. Cannell and Sons, Swanley, honoured the passing of the year with a bright exhibit of zonal *Pelargoniums*, monuments of good culture. The flowers were as large as ever, and the colours equally bright. Some of the most attractive were *Hibernian*, *Kingswood*, *Caledonia*, *Sir T. Hanbury*, *Carmania*, *Caronia*, *Ascot*, and *Princess of Wales*. (Silver-gilt Banksian medal.)

Messrs. H. B. May and Sons, Upper Edmonton, contributed an effective group arranged on the ground floor. Bays of *Carnations*, *Euphorbia jacquiniiflora*, *Azaleas*, and *Dracæna His Majesty*, occupied the flanks, while a central group of *Poinsettias pulcherrima*, *P. p. bicolor*, and *P. p. alba* was nicely arranged. (Silver Flora medal.)

Messrs. W. Cutbush and Son, Highgate, occupied a large table with *Pernettyas*, *Oranges*, and *Poinsettias*. A fine exhibit of *Carnations* also came from the same firm. (Silver-gilt Banksian medal.)

Certificates and Awards of Merit.

Odontioda Craveniana (Charlesworth and Co., Heaton, Bradford).—Parentage: *Cochlioda Noetzeliana* × *Odontoglossum cordatum*. Another pretty member of a new "genus." The flower partakes of both parents, resembling the *Odontoglossum* mostly in the lip. The flowers measure about 2in across, the petals and sepals brick-red crimson, suffused with a bronzy tint; the lip paler, and veined in front with buff. The raceme bore eight flowers and buds. F.C.C.

Cypripedium Moonbeam (Major Holford, C.I.E., C.V.O.).—Parentage: *Thomsoni* × *Sallieri Hyeanum*. The flower is large and handsome, and quite distinct from any other *Cypripedium*. The wavy dorsal is 3in broad, deeply indented in the middle, which is purplish. The base is of an emerald tint, the upper portions white. The wavy-edged and varnished-looking petals are bronzy-green, and so is the pouch, the former also being lined in the centre with purple. The flower is 5in wide, and as deep. From Westonbirt, Tetbury (grower, Mr. H. Alexander). A.M.

Cypripedium Troilus Craveniana (J. H. Craven, Esq., J. P., Beeches, Keighley).—Parentage: *Cypripedium insigne*, Harefield Hall × *Cypripedium nitens*, May Balls. This appears washed-out. Certainly it is not so fine as the Harefield Hall, though in some respects seemingly larger. The petals and pouch, however, are paler. (Gardener, Mr. F. Carney). A.M.

Primula obconica grandiflora (E. A. Hambro, Esq., Hayes Place, Kent).—This received a unanimous vote. The variety certificated was "Hayes Place Double," which has double rasy-mauve flowers, varying in their depth of colour. Some of the petals were more fringed than others. A.M.

Potato, Favourite (Dobbie and Co., Rothsay).—A medium-sized white kidney, smooth and even. It had been on trial at Wisley, and now received a F.C.C.

Southampton Royal Horticultural.

46TH ANNUAL MEETING.

The forty-sixth annual meeting was held in the Mayor's Parlour at the Audit House. His Worship (Alderman C. J. Sharp) presided. The annual report and statement of accounts was submitted by Mr. Blakeway. It had been his bad fortune, he said, on several previous occasions to record an adverse balance on the working of the society, but this year, in spite of all their difficulties, they had a surplus of £1 7s. 6d. as a difference between receipts and expenditure. Their subscriptions this year, he observed, were six shillings better than the highest subscription for the past ten years. He hoped the townspeople would support their society a little more. Mr. Toogood seconded, and the report was unanimously adopted. Eighty-seven new subscribers were added during the year, but

unfortunately the names of an unusually large number (seventy-six) of former members had to be removed during the same period, the net gain in subscriptions being £2. The receipts, including £472 8s. 9d. brought forward, amounted to £715 8s. 10d., and the expenditure was £700 17s. 3d., leaving £14 11s. 7d. cash in hand. There was a credit balance standing to the society of £49 4s. 1d., as against £26 10s. 11d. last year. After some discussion with reference to the schedule for 1908, during which various recommendations were made to the Council, and Mr. A. Munt kindly offered a cup for competition, the election of officers was proceeded with. Lord Swaythling was unanimously re-elected president.

Bristol Gardeners'.

QUESTIONS.

Owing to the proximity of the festive season, meetings were held in two consecutive weeks. The meeting held on Thursday, December 19, was of special interest, and was presided over by Mr. J. C. House. This night had been set aside for questions. Papers were prepared, numbered, and handed round to each member, who wrote down a question and returned the paper, all of which were mixed up and again handed round. The chairman called out the numbers in rotation, the members possessing the corresponding numbers first read out the question and then answered it. Among numerous questions were the following:—

Can anything be done to stop book travellers pestering young men for orders?

Give remedy for Peach blister?

Information required on the new Twentieth Century Mushroom spawn?

Why is gardening spoken of so lightly?

Remedy for Celery fly?

Most economical fuel?

How to eradicate the wild *Convolvulus*?

What to grow in town gardens?

Any member was invited to add information upon all questions, and a variety of remedies were given. For two winter-flowering *Begonias* Messrs. Shelton, Binfield, and Grieve were placed in the order given. — H. W.

Manchester Horticultural.

ROSES.

The last meeting was a strikingly good one. Mr. Holt, the lecturer, handled his subject, "Don'ts, re Roses," in an uncommonly humorous manner, and highly successful too. Devotedly fond of his subject, and as a result more than ordinarily enthusiastic, lucid in his language and firm in his delivery, his lecture is classed amongst the society's best. It was a lecture at once "witty and wise," as said our genial secretary. Briefly, some of his "Don'ts" were:—Don't be downhearted at failure at a first attempt in growing Roses. Don't forget to place your order early. Don't omit, on any account, to thoroughly prepare the ground before planting; nor plant when the soil is in a sodden condition. Do not overlook the value of root pruning at planting time, and never bundle the roots together when planting, and plant firmly. Don't allow the roots of newly-planted Roses to be too much disturbed by strong winds. Never omit to apply the winter clothing quite early. Don't "spare the knife and spoil the tree" at pruning time. Severe pruning should be done to all newly-planted Roses. Don't forget to be on the look-out for the May maggot. Don't let Rose trees carry too many shoots, nor fail to disbud even if growing solely for garden decoration. Don't despise the use of artificial manures if you desire superior blooms, but avoid pouring liquid manure into dry soil. Don't ascribe to tea Roses the failing of being too tender for outdoor work. Don't be misled by the misnomer "perpetual" as applied to the hybrid perpetuals; and don't fail to plant a large proportion of hybrid teas.

Around his Roses he wove much practical matter which perhaps we may return to at some time in the near future. The lifting and heeling in of Roses during the winter were referred to. Mr. W. P. Robinson said that in certain Lancashire districts Roses could not be grown until this plan had been adopted. The success which followed this treatment in those particular districts had, singular to say, been noted by Mr. Paul. Mr. Burgess pointed out that while this would do for growing Roses for garden decoration, he did not consider it would be found advantageous for Roses growing for exhibition. He remarked that a plan very similar was used in the vicinity of Hamburg (that most delightful of cities in North Germany). The soil was loosened and the plants drawn to the ground. He (Mr. Burgess) advocated the use of good red marl, and his is an opinion to be valued, for his success so far as ground preparation is concerned has come as a result of his use of marl. He was a very welcome visitor, and added not a little to the already excellent evening. The president, Mr. Brown, was unfortunately called away from home, a fact much regretted by all.

for if there is one branch of horticulture to which he devotes more attention than another, that branch must be Roses. His displays at our botanical gardens from time to time are not to be easily forgotten. In Mr. Brown's absence, Mr. Robinson occupied the chair, and with Messrs. Elkin, Wilsner, Edwards, Colley, and others very pleasantly discoursed on the Rose. The evening of the 19th inst. is in the hands of Mr. H. Boyd with the subject "Vine Culture."—W. H. W.

Pangbourne (Berkshire) Gardeners'.

THE ROCK GARDEN.

On Wednesday evening, December 18, a very interesting and instructive lantern lecture was given before the members of the Pangbourne and District Gardeners' Mutual Improvement Association, the speaker being Mr. H. Hemsley (author of "Rock and Alpine Gardening"), of Messrs. J. Cheal and Sons, Crawley. The subject for the evening was "Rock and Alpine Plants at Home and in Switzerland: the Formation of Rockeries," illustrated by 100 photographic views. Some forty or fifty views of Swiss scenery were thrown upon the screen, which the lecturer at the same time very simply and fully explained, so that his audience were able to form very good ideas as to what climatic conditions alpine plants were subjected to in their native habitats. Anyone visiting the Alps would at once notice that the plants found there were fully exposed. Nature alone clothes each individual plant with an outfit all of her own to enable it to withstand the many fierce storms, and one would do well to remember that most of them were completely frozen nearly every night, all the year through. This fact accounted for their being of such peculiar shapes and small in structure.

Another point to be noticed is that the situation or aspect where they are found growing is fully open, so that the plants receive as much light and air as possible during the short time they are uncovered from their snowy mantles. Again, we would notice that a great number of them seemed to be growing out of the solid rock; but as the speaker explained, on examining same we would find invariably that their roots penetrated to the depth of 2ft or 3ft into the crevices between the rocks, and were firmly wedged, and growing in small particles of rock, stone, soil, or vegetable matter. This being the case they are out of all harm's way; hence we should copy Nature as far as possible when making rock structures, whether on a large or small scale, then success would follow our endeavours, and we would have something which would soon repay us.

Mr. Hemsley dealt with his subject in a very comprehensive manner, taking in the choosing of site, drainage, stone, and material for constructing artificial rockeries. He said that the stones or rocks should be laid so that the water would run into the main structure, and so be able to convey moisture to the plants, which would help to keep them cool during very hot weather. For the best effect, three to six plants of a kind should be grouped together. This would give a mass of bloom. Care should be taken to interweave those which bloom early in the season with the later ones; also to distribute plants with "evergreen" foliage well over and about the whole structure, so as to make it look furnished during winter. Then the blending of colours so as not to clash ought to be taken into consideration, for if wrongly placed they often spoil the whole effect. The lecturer considered that the best time for planting rock plants is without doubt from September to November. By so doing the plants would be found to establish themselves ere winter arrived; besides, they would bloom much better than those planted in the spring. Of course, providing that the weather is permissible, and we procure plants in pots, then we may plant practically all the year round, applying abundant water to them during hot weather.

Mr. Hemsley ridiculed the making of rockeries as sometimes seen, namely, the placing of stones on the top of the ground so as to resemble a batch of tombstones or some other nondescript, not easy to describe, but once seen ever to be remembered. It is owing to this method of rock construction that a great number of people have become prejudiced against rock gardens, and the little plants which delight thereon. No wonder that they say that they have met with utter failure. They deserve to do so, as any child—providing he was strong enough—could throw up a heap of soil and put some stones on and about it, completing same by planting it, and meet with the same results.

These methods will not do. Perfect drainage must be aimed at by mixing plenty of stone chippings and mortar rubble with the soil, not forgetting to make all crevices, pockets, and fissures as deep as possible; and above all, when planting, to plant firmly. Success will then be the result.—H. C.

Reading (Berks) Gardeners'.

PRIZES FOR BUTTONHOLES.

On November 18 Mr. W. J. Townsend, of Sandhurst Lodge Gardens, read a most interesting paper before the members of the above association on Roses. The subject was dealt with in a most practical manner, commencing with the preparation of

the soil, manner of planting, varieties to plant, especially the Wichuraiana and Penzance Briar classes. Particular attention was directed to the effects produced by the use of climbing Roses on walls, arches, pillars, fences, &c. The subject was made exceedingly interesting by a series of lantern slides reproduced from photographs taken by Mr. Townsend in Sandhurst Lodge Gardens, portraying masses of Roses on walls, covering old fruit trees, arches, fences, &c. A good discussion followed. Mr. H. Goodger, of Stoneham House Gardens, was awarded the association's certificate of cultural merit for an exhibit of Grapes, comprising good bunches of Lady Downe's, Black Alicante, and Gros Colman.

On December 2 Mr. W. Tribbick, of the Gardens, Brooke House, Isle of Wight, was the lecturer, and his subject was "Stove and Greenhouse Plants," who not only recorded his successes but his failures with the plants touched upon, drawing lessons from both for the information of his audience. The bulbs touched upon were numerous, but special attention was directed to Eucharis, Pancratiums, Tuberoses, Lachenalias, Nerines, Callas, Amaryllis, Lilliums, Freesias, and Vallotas. A splendid discussion followed. During the evening the president distributed the prizes awarded in the competition held on November 4. The successful competitors were:—

For a spray and buttonhole, open to head gardeners and foremen only: 1, Mr. F. Stoton, Bear Wood Gardens; 2, Mr. W. Weston, Purley Park Gardens; 3, Mr. J. Wynn, East Thorpe Gardens; 4, Mr. H. Goodger, Stoneham House Gardens; 5, Mr. J. Botley, The Scarletts Gardens, Twyford; eleven competed.

For bowl of flowers, open to all excepting head gardeners and foremen:—1, Mr. J. Carter, East Thorpe Gardens; 2, Mr. G. A. Smith, Reading; 3, Mr. A. English, Culham Court Gardens; 4, Mr. F. Barnes, University College Gardens; 5, Mr. E. W. Fuller, Park Wood Gardens; 6, Mr. G. Ackerman, Culham Court Gardens.

At a recent fortnightly meeting of the above association held in the Abbey Hall, Mr. H. J. Jones, the well-known trade grower and exhibitor of Lewisham, delivered a most practical and exhaustive lecture on Chrysanthemums. For ninety minutes the lecturer kept his audience fully interested. He strongly impressed upon his listeners that attention to the very smallest details very often decided whether the first or some other prize was obtained. There was very little time left for discussion, but a good deal of information was gained by the questions asked by Messrs. Hinton, Durward, Judd, Exler, Wilson, and Goodyer. A very hearty vote of thanks, on the proposition of the chairman, was accorded to Mr. Jones for his very instructive paper. Mr. G. Hatch, of Cavenham Park Gardens, Mildenhall, Suffolk, sent twelve splendid bulbs of Sutton's Selected Ailsa Craig Onions, which had recently been awarded first prize at Bury St. Edmunds Show, and also first prize at the Norwich Chrysanthemum Show; and Mr. A. F. Bailey, of Leopold House Gardens, Reading, exhibited two seedling plants of *Cryptomeria gracilis*.

Royal Meteorological.

TOPOGRAPHY OF THE AIR.

The monthly meeting of this society was held on Wednesday, December 18, at the Institution of Civil Engineers, Great George Street, Westminster, Dr. H. R. Mill, president, in the chair. Capt. C. H. Ley read a paper on "The possibility of a Topography of the Air, based on Balloon observations with special Theodolites." The author gave the results of his own observations in Herefordshire in connection with the International balloon ascents which were carried out during the summer. His method of observing is based on the direct estimation of the range of the balloon from its apparent diameter as measured by cross threads in a telescope; the range being thus determined, an altitude and azimuth are read, and the position of the balloon fixed and plotted on a map. As a rule, over a hill both the vertical and horizontal velocity increase, but the vertical velocity in greater proportion than the horizontal.

On the other hand, over the lower ground before and after a hill it appears that a horizontal velocity usually increases faster, or shows a less decrease than the vertical velocity, especially at the greater heights. The horizontal deflection of the wind due to the ground is much more marked when there is less wind, as in anticyclonic conditions, in cyclonic calms, and at low altitudes. In such conditions the general tendency seems to be for the breezes to blow as far as possible along the contours of the ground. In the case of a valley, the line of least resistance is found along the bottom of the valley; and in the case of a ridge this line is along the contours; and there sometimes appears a breeze along and below the farther edge of the ridge, in a direction indicative of the general direction of the superimposed current. Horizontal deflection is often accompanied by a collapse of vertical velocity. The author in conclusion says that the varying topography of the earth's surface produces disturbances in the atmosphere with

effects which are transmitted throughout the lower and middle strata; and that the general effect on a current is to increase its velocity over a hill and decrease it over a valley, and this is especially the case with the vertical velocity. The origin of the phenomena is to be sought in the mechanical effect of obstruction of the lowest stratum, but there are probably various ensuing complications which may accentuate the result. The measurement of these effects can be carried out by a topography of the air made in any locality. Mr. R. Strachan also read a paper on

"INDICATIONS OF APPROACHING FROST,"

in which he said that for the purpose of making forecasts the dry and wet bulb thermometers should be noted at or after sunset, or at 9 p.m., and the amount of cloud at the time, and during the forepart of the night if convenient. The dew point can be found by reference to hygrometrical tables. When the dew point is at or below 32deg frost is in evidence, but may be evanescent, due to a rise of temperature, with change of wind, rain, or overcast sky. Even when it is above 32deg, if the sky is clear it is possible that the temperature on the ground will go low enough for frost to form. Thus the evening observations should lead to a good idea of what may happen during the night.

Egham (Surrey) Gardeners'.

"THE IMPROVEMENT OF PLANTS BY SELECTION AND HYBRIDISATION."

A lecture on the above subject was given on December 4th by Mr. S. T. Parkinson, from the South-Eastern Agricultural College, Wye. Mr. J. Record presided, and there was a good attendance. The lecture proved most interesting. Mr. Parkinson, with the aid of a number of highly magnified lantern slides, showed the structure of many different flowers, and how fertilisation took place, advising his hearers to take some particular plant in hand and try and improve it by his methods. Several questions were put to the lecturer and answered by him, and a hearty vote of thanks accorded. The exhibits were two dozen bottles of sterilised fruit beautifully done and looking very tempting, also cut decorative Chrysanthemums from Mr. Sturt, gardener to N. L. Cohen, Esq. Out blooms of Chrysanthemum Violet Carpenter from Mr. Lingwood, gardener to W. G. Rigden, Esq. Votes of thanks were accorded. In the amateurs' and cottagers' competition for a dish of Brussels Sprouts there were eight exhibits, Mr. White being placed first, and Mr. Joyce second.—H. P.

Metropolitan Public Gardens' Association.

OPEN SPACES.—At the monthly meeting of the Metropolitan Public Gardens' Association, held at 83, Lancaster Gate, W., Sir William Vincent, Bart., vice-chairman, presiding, a letter was read from the Islington Borough Council agreeing to the proposal made by the association over two years ago that the Council should take over certain enclosures offered by the Water Board in Duncan Terrace for maintenance as public gardens, which the association was prepared to lay out at its own expense. It was decided to commence the work as soon as the Council was in possession of the sites. Letters were read from the Woolwich Borough Council respecting efforts made in the past to secure the highest portions of Shooter's Hill, and a hill top adjoining Maryon Park, and it was agreed to renew negotiations. It was stated that the Hammersmith Borough Council was indisposed to acquire St. Peter's Square at the price named to the association, and that negotiations for the acquisition of West Square, Southwark, were still in progress. Estimates were considered for the supply of some 1,500 trees granted for thoroughfares in East Ham, and an application was received from the Walthamstow District Council for similar tree planting assistance, upon which the landscape gardener was asked to report.

Progress was reported respecting schemes in hand for the acquisition of areas in Barking Road, East Ham; Fairfield Road, Bow, and Gipsy Road, Norwood, and it was stated that £1,800, £1,600, and £2,800 were required to complete the respective purchase funds. A letter was read from the Kensington Borough Council asking the association to supervise and direct the work of pruning trees in the thoroughfares of the borough during the ensuing winter, and it was decided to do as requested. It was announced that the woodland area known as Purley Beeches, Sanderstead, in the preservation of which the association had taken part, was opened to the public on Saturday, the 30th ult., and that an intimation had been received that building operations on a portion of Hampstead Heath by a local scientific society had been abandoned. A communication was received from the Finchley District Council in reference to efforts made to secure a portion of Coldfall Woods. It was agreed to continue during the next summer season to encourage the formation of outside window gardens in the poorer parts of the Metropolis by means of prize competitions, and to communicate with the Metropolitan clergy and others on the subject.

Market Gardening Notes.

WHOLESALE ARRIVAL OF PINES.

These, sold in the Floral Hall by auction, realised from 1s. 9d. to 3s. 6d. each on the 27th ult. A large number of lots were passed over unsold. Again, a quantity of unsound fruit went from 8d. each. No doubt there was a reason for the faulty delivery, possibly due to the failure of the refrigerator.

MUSHROOM BEDS IN EARLY VINERIES.

On the paths these can be well done, and the manure used in a warm state will assist the swelling and breaking Vines. I know the convenience of the Vine grower has to be thought of, but a few sovereigns coming in for Mushrooms is a welcome side line. Just now I know of one who is pulling at 1s. 3d. per lb, and started the bed very early in November. After the spawn is spent the manure is good for the vegetable crops.

ERICA CAFFEA.

This old (1802) Caffrarian white Heath came into the market recently. Mr. James Sweet took the lead with 32's at 12s. to 18s. per dozen. Messrs. Hugh Low and Co. had very neat stuff in 48's. I was informed by both growers that the season has not been favourable for the wood ripening, and certainly the first batch is not up to the usual high standard. It has been frequently remarked that no market in England can come up to Covent Garden for quality.

HARDY PINKS FOR CUT FLOWERS.

This is a favourable time for the due manuring and careful forking of the beds and borders. Very comfortable do the rows look when well done. See, however, that no weeds are left in the ground. Avoid plastering manure round the neck of the plants. Early ground work meets its reward in the free growth of plant and good strong blooms. In digging in the manure be rational, and success will follow.

THE MARKET GROWERS' SYSTEM OF POT WASHING.

The system is a good one, only requiring standing room. In the Hampton district (a district which is now alive in the matter of the supplies for Covent Garden) the system is simply to place the empty pots on the ash beds, &c., and leave the cleaning to the rain, wind, and atmosphere, and it is being well done! Lilliums, Roses, Chrysanthemums are the "turn outs" in that district. The same style is observed in the Enfield Highway locality.—STEPHEN CASTLE.

Stove and Greenhouse Plants.

Plumieria bicolor.

To lovers of sweet scented flowers Plumierias will be appreciated, as the perfume is delicious. I have found that a stove temperature is necessary to grow and flower them satisfactorily; then, if proper attention is afforded as regards watering and compost, not much difficulty will be experienced in their management. Good turfy loam three parts, with one of well decomposed manure, a dash of silver sand, and a few pieces of charcoal suits them admirably. After the flowering season, which generally occurs during August and September, and when the foliage commences to turn yellow, water should be gradually withheld, and when the whole of the leaves have left the plants may be withheld altogether for some weeks, care being taken that they are out of the way of drip, as during the cold season, if kept too moist, the stems are almost certain to decay at the soil level. One of the most beautiful of these plants, *P. bicolor*, is depicted. In early spring, or when signs of growth appear, the plants should be shaken out, removing a portion of the old soil after the manner of shaking out Fuchsias, and indeed a compost that will grow these will suit Plumierias. Water should be applied with much caution for some weeks until the roots have taken well to the new soil; the supply may then be increased, and when in full and vigorous growth occasional applications of soot water will be of much benefit. The plants should be shaded from bright sun, and it is essential to use the syringe very freely, as aphids, thrips, scale, and mealy bug all seem to be much enamoured of the succulent nature of these plants, and must be guarded against accordingly, or the handsome green leaves will soon be bereft of their beauty, and the chances of the plants flowering freely be very remote. To propagate, I have found it best to stand the stems erect by the aid of a small stick on the surface of sandy soil or cocoanut fibre refuse, and not insert the cuttings, as they are very apt to damp if the latter method is adopted. The compost should be moderately dry.—GROWER.



An Apocynaceous Plant (*Plumieria bicolor*). Flowers white and yellow.

Young Gardeners' Domain.

We wish all our Readers, especially the young,
A Happy New Year.

* * The prize is awarded to Mr. Ernest Grey for his notes hereunder:—

Annuals for Autumn and Spring Flowering in Pots.

There are several varieties of annuals which easily adapt themselves to any season of the year when sown at periods to correspond with the required time of flowering. One of the showiest is *Schizanthus*. Seeds of this sown early in June will make a gay show early in October, and last a long time. Another sowing at the end of July will begin to flower in the early spring months. The seeds should be sown in pans in a light sandy soil, and be placed in a temperature of 65deg to 70deg, where they will quickly germinate. When they have quite done so they should be moved to a light cool place to prevent them drawing. As soon as they show the proper leaves, pot singly into 2½in pots in ordinary loam, leaf soil, and sand, and shift on into flowering pots as soon as the roots penetrate the soil in the small pots. Always keep them in a light, cool place. In good loam they will not require much feeding.

Stocks are other showy pot annuals, and can be treated very similar to *Schizanthus* as regards times of sowing and soil. The best varieties of the former are *S. wisetonensis*, undoubtedly the best of them all, in all colours, with a sturdy dwarf habit; *S. pinnatus* and *S. p. albus*. The former is mostly in dark colours, the latter white. *S. Grahami* is a dwarfish variety with extra large chocolate and orange coloured flowers, suitable for table decorating. The best variety of Stocks for pot work is *Beauty of Nice*. It is of a pleasing shade of soft pink, and carries itself erect. It is extremely useful for cutting for vases. The *East Lothians* in several shades are good to grow for early spring work, for the staging in the greenhouse, or for cutting; also *Sutton's All the Year Round*, pure white.

Wallflowers are capital for winter flowering. Seeds should be sown in a border outside end of March. About August prick off into a border, end of September pot up into 6in pots in a compost of loam, Mushroom-manure, and lime rubble. Place outside until hard weather comes, then give the protection of a cold frame. By January they will begin to flower if taken into a newly-started vinery by the middle of December. Their fine strong perfume is very much appreciated at this dull season.

Mignonette can also be had in flower at Christmas by sowing in June, in 5½in pots. When sowing place a little dried cow manure in the bottom over the drainage, and use plenty of lime rubble in a strong loamy soil. Sow thinly, and when well established thin out gradually to three plants. Put them outside at this stage, keeping them there until the frosts set in, giving them the shelter of a cold frame or cool vinery. Several other varieties of annuals may be had in flower in spring. *Scabiosa*, sown in August and grown-on in cool frames, will flower in early spring.

Where a large amount of cut flowers are required for decorating, and houses are to be furnished with bloom, such easily-grown subjects are most useful. Their flowering period may be lengthened by growing batches, and when established keep half of them quite cool, with full amount of air on, and the others in a cool frame, but not airing quite so freely.—ERNEST GREY, Aake Hall Gardens, Richmond, Yorkshire.

The Soil Science.

A knowledge of elementary science is very desirable for young gardeners in the present day, and those who make it a special study will probably find it assist them in their gardening career. I have heard it said there is science in all things, and this is certainly true in all branches of gardening. It is especially on the properties of the soil, however, that I wish to write these few notes. There are two classes of constituents in plant life: the inorganic, which may be called the foundation, and the organic, the superstructure (or that portion above the ground); but it is the former that we are principally concerned with here. A plant must derive from the soil certain proportions of alkalies, silica, lime, phosphates, and sulphur, or it cannot exist at all. Given these, its development depends upon light, air, heat, and moisture.

A clay soil containing a fair proportion of lime is very fertile for most purposes; but clays of a retentive nature, which need much cultivation and the addition of various constituents, are not so productive in themselves; but given the necessary adjuncts they are more sustaining than soils of a very porous character. Sandy soils usually contain an excess of silica, but are deficient in alumina, potash, and phosphates. Given these constituents, however, they are capable of producing most kinds

of crops. A good mellow loam is the best for all purposes, and usually contains a little of all the more valuable ingredients.

Shallow soils are deepened by means of trenching. It is better to leave the subsoil at the bottom, but it must be well broken up, and by annually incorporating manure and other suitable materials there will soon be a considerable depth of loamy soil. It will then be beneficial to trench the ground 3ft deep, bringing the second spit to the surface, but merely forking over the bottom. This method of cultivation not only encourages crops to root deeply, but assists in retaining moisture at the roots during a prolonged period of drought.

Farmyard manure is valuable on any land. Besides supplying ingredients necessary to all crops, it helps to lighten clays, and adds staple and substance to sandy soils. The application of kainite and superphosphate of lime will counteract the deficiencies of sandy soil in alkalies and phosphates. Wood ashes and lime are very valuable on heavy clays. Nitrogen and carbon are also important elements in plant growth, and are principally supplied in manures derived from the animal kingdom.

When planning out the garden for different crops the land should be chosen according to their requirements. Peas, Beans, Carrots, Parsnips, and Potatoes succeed best in soil that is rich in potash and phosphates. Brassicas prefer a predominance of sulphur, lime, and soda salts. By restoring to the ground annually what it has lost in vegetation, its resources will be augmented rather than exhausted.—J.

The Eucharis.

This handsome bulbous plant is not often grown to perfection. Apart from the beauty and usefulness of its flowers there is something noble and handsome about its foliage—those large blackish-green leaves that are so much admired. The flowers are invaluable in a cut state for the dwelling-house or for bouquets and wreaths. The culture of the *Eucharis* is by no means difficult. Immediately the flowers are cut a much less quantity of water should be given, and gradually withhold water until the leaves flag somewhat. Then transfer the plants to a cooler temperature, say 50deg to 55deg. Later on remove to a fruit house from which the fruit has been gathered, and only apply water when the leaves hang limp over the pots, and then immerse them to ensure the soil being thoroughly soaked. When the bulbs have had a fair period of rest remove them to the stove again, or other house of equal temperature, and plunge the pots to the rim in new tan, and the bulbs will soon respond to the warmer conditions by throwing up a wealth of flowers. It is a good plan to have two batches of plants, thus enabling one to maintain a much longer succession of flowers.

With regard to stimulants, when the flower spikes appear an occasional dose of liquid prepared from sheep and fowl manure is a great aid to the plants, and at all times during growth alternate waterings with clear soot water are beneficial to enrich the colour of the foliage. *Eucharis* do not care to be disturbed at the root more than is necessary, and this is when the bulbs have increased so as to crowd each other in the pots, when they should be shaken out and be repotted into 8in to 10in pots, or even 12in pots may be used for the larger bulbs. When doing this keep a sharp look out for the *Eucharis* bulb mite, which is very destructive. Cleanliness and good drainage should be strictly adhered to. The compost should consist of good rich friable loam, with a good sprinkling of bonemeal and silver sand, and a few pieces of charcoal and lime rubble may be added to ensure the whole being kept perfectly open and sweet. Those which do not need repotting should, previous to being started into new growth, receive a top-dressing of the above compost.—CULHAM.

Saxifragas.

I do not think one really appreciates this family until the winter effect is to be seen, then the various silver and green shades are very apparent when the sun in those dreary months makes them glisten. Then one seems to notice their value as plants, and not for flowers alone. Take the *cordifolius* or *Megasea* section. What arrays of green and purple one can perceive; and should these be hanging over the water's edge the beautiful reflections give a double charm. In fact, to see the *Megasea* at its best it should be at the edge if possible, and on a slightly raised bed above the water level. *Saxifraga cordifolia purpurea*, red leaved and purple pink flowers; *C. p. Agamemnon*, deep red leaves and rich red flowers; and *S. Megasea Stracheyi*, salmon and white flowers with a bright green serrated leaf; and *Afghani*, white flower, are perhaps the pick of them. They require a very moderate soil, not too rich nor too moist. *S. peltata* is a bog species, and a typical spring flower and foliage plant, the leaves changing to a brilliant copper red in the autumn.

Upon raised rockeries, where drainage is speedy, the encrusted section are more at home. When planting use some clay marl to make them firm, and do not get the rosettes too low. The two foremost favourites, *S. aizoon* and *S. apiculata*,

should always be employed, the former being silver in leaf with white blossoms, and the latter yellow with spiny-like rosettes of foliage. *S. a. major*; *S. a. rosularius*; *S. a. balkana* (pink blossoms), are the best of the aizoons. *S. sancta* is similar to *apiculata*; *S. Burseriana* and *S. B. major*; *S. crustata*, *S. Macnabiana*, and *S. pyramidalis* are all good. The last two are useful for fronts of borders, and their flower scapes are from 1ft to 2ft in height. *S. lantoscana*, *S. notata*, *S. pectinata*, and *S. Valdense* are perhaps the pick of the encrusted section, nearly all of which have beautifully marked silver leaves, and are free flowering. *Sax. longifolia* needs an open spot in a nearly upright position, but unfortunately dies after flowering.

Of the mossy, and I must say showier, flowered section, *S. Guildford Seedling* (scarlet), *S. muscoides* and varieties, *S. caespitosa* (pink), *S. Rhei*, *S. palmata* (white), *S. Wallacei* (white), *S. Stansfieldi* (white-pink), are some of the best. They thrive in most any position, and even do well in shade of trees, but in the latter place have a tendency to become ragged. *S. umbrosa* and its variegated form, better known as London Pride, will thrive in almost any soil or position, giving a more starved soil than to the variegated one. *S. oppositifolia* (purple), and *S. o. alba* are creeping varieties, resembling *Thymus serpyllum* somewhat; while *S. granulata fl.-pl.* is a deciduous spring and summer flowering species, that requires slight shade. Space will not allow of the inclusion of more, but their variety and beauty is legion.—D. Watson.

Ventilation.

Ventilation, or the admitting of air to plant houses, is one of the most important operations which young gardeners are called upon to perform. There are numerous details attending the admission of air—the state of the weather and the difference between the temperatures outside and inside are the most important points to be considered. At different seasons, too, plants require different treatment. Spring is perhaps the most trying season. The greatest care is then needed in admitting air, as most plants are then in a young and tender state. The admittance of too much air or too little soon shows its evil effects upon the young and tender foliage. In daily management, when it is known that air will have to be admitted to a house, the ventilators should be gradually opened as soon as the temperature begins to rise in the morning. The temperature should never be allowed to get high, so that the amount of air that is required for the day has to be put on at once. Such treatment is in most cases very destructive, as it makes so sudden a change that a chill is inflicted on the young foliage. In summer, when the temperatures inside and outside correspond more, air may be admitted more freely without causing any such injury. If the wind is very rough, or the air cold, the ventilators should not be opened at the back part and the front part of the house at the same time, as a draught is thus incurred, and draughts should always be avoided. The ventilators should always be opened the opposite side from which the wind is blowing.

The system of applying air has greatly improved during recent years. In the old-fashioned houses the ventilators are worked by cords and weights to each sash, which is very inconvenient, especially in wet weather; whereas in the more recent houses the ventilators are worked by a lever, so that a sash 20ft long may be opened or shut with one hand in a tenth part of the time. Again, in the old-fashioned houses the panes of glass are very small, the amount of woodwork is therefore greater, and forms partial shading to the house, so that not nearly the amount of air is required for the old as for the modern houses. The quantity of air and the mode of applying it must be thoroughly understood for the successful culture of plants under varied circumstances.—C. LANGRIDGE, High Leigh, Hoddesdon, Herts.

An Irish member of the B.G.A. sends the editor of the society's journal a collection of about one hundred advertisements for gardeners, &c., cut from the best papers published in Ireland, and they do not furnish pleasant reading to those who desire to see gardeners remunerated in proportion to their knowledge and work. The following are examples:—

"Gardener wanted, married or single, wages 12s. per week, free house, firing, milk."

"Wanted, working gardener, married, thoroughly understands his business, 12s. a week, free house."

"Gardener, under head, 18s., industrious, skilful, experienced, milk cows, clean boots." Judging by the liberal advance in wages compared with the two preceding, this must be one of the prizes of the profession. "Experienced" applies, presumably, not only to the gardening requirements, but also to the milking and boot cleaning.

"Working gardener wanted near Dublin, understanding glass, wife attend gate, 13s. weekly, milk, lodge."

"Gardener wanted, must understand Vines, flowers, fruits, vegetables, no house or requisites, wages 18s." This affords a splendid chance for a man who wishes to study (and practise) economy.



Fruit Culture under Glass.

FORCING THE APRICOT.—This fruit is not at all common under glass, and my reason for including it is that it can be grown splendidly in a cool house, and is well worth attention. Now is a suitable time to plant; and before this is done let me add that much better results will be secured if the house is what growers term a cool one, and if the lights are moveable, so that the trees can be fully exposed when the fruits are gathered, so much the better. Grown under glass the Apricot is a delicious dessert fruit. I do not advise pot culture. Plant out in good loamy soil, with a liberal addition of old mortar rubble and wood ashes; plant near the surface, as this allows of liberal top-dressings. Last season in the northern part of the kingdom I saw a splendid lot of fruits in a house facing west. Here the ventilation was perfect, and the trees, though a good age, cropped grandly. For many years I grew these fruits under a glass coping, but was obliged to remove the coping for some months in the year. In many gardens the Apricot fails on open walls. In such cases I advise a cool house, and to plant such varieties as Large Early, Early Moorpark, Hemskirk, the Peach Apricot or large Grosse Pêche, and the Shipley or Blenheim. The first named is one of the earliest to mature: a rich orange coloured fruit, and a better grower than the Moorpark; but the last named gives a delicious fruit, and does well under glass. In making the border, avoid rich manures. In planting select those trees which have good clean leaders or terminal shoots.

EARLY CUCUMBERS.—These plants come under the heading of "fruit grown under glass." This period of the year is a good time to sow seeds. Seed is best sown in small 60-pots, in genial bottom heat, and the soil, if moist, will not require water; indeed, many failures occur through overwatering at the start. The soil for planting out should be prepared and got in position at the same time. This done, it will get warmed through for the plants. A fibrous, rather rich soil suits well, or soil to which has been added a liberal amount of spent manure.

EARLY TOMATOES.—Seed sown now and grown on should give ripe fruit in May; but to do this there must be no check of any kind, and I find it best to sow rather thinly, so that when the seedlings are potted on they get no check. A successful grower known to me always sowed his early Tomatoes like Cucumbers, in small pots, two or three seeds, and thinned to the strongest. By so doing potting off is avoided, and time saved; but the plants must in any case be carefully watered at the start, and grown near the lights. When the seedlings are developed avoid strong heat, as it is necessary to maintain a sturdy growth. Sutton's Earliest of All does well.—G. W., Brentford.

The Flower Garden.

LAWNS.—These should be swept and rolled at intervals throughout the winter, when the weather is favourable. Any uneven places will be levelled more satisfactorily if the turf is lifted and relaid, rather than filling up the low places with soil, and beating down the high ones. In private establishments little if any work is necessary in renewing worn patches; in public parks and gardens, however, it is usually a big item. The sooner such work is done the better, so that the new turf will be settled down before there is much walking on it. The manuring of lawns in many places seldom receives attention, the fact of the soil becoming impoverished, by constantly cutting the grass and carting it away, is overlooked. A dressing of well-decayed farmyard manure during the winter will do a lawn a deal of good. If stirred and raked about at intervals very little will remain by the spring. When farmyard manure is not available, a dressing of artificial manure may be given. Mixed with three or four times its bulk of fine soil, the fertiliser is more evenly and readily distributed. When manuring pay special attention to places where the grass is weak.

BEDS IN THE PLEASURE GROUNDS.—When the planting of the herbaceous borders is finished, there are usually a good number of roots of the strong growing kinds remaining. Some of these may very well be employed for filling a few beds in the pleasure grounds, which are more or less isolated from the general scheme of summer bedding. How beautiful a large bed of *Helianthus* Miss Mollish, *Chrysanthemum uliginosum*, or *Delphiniums*, appears in the distance, looking from the windows of the mansion, or from the terrace. Again, how pleasing it is when walking through the grounds to round a curve in the shrubbery, and come suddenly on a small bed of *Funkias* or other herbaceous plants in full flower.

PREPARING FOR SUMMER BEDDING.—It is time now to go over the stock of plants in the houses and frames to see how the numbers compare with those required. It is better to consider the arrangement of the beds for the following year, when the summer bedding is at its best. If this was not completed at the time it should be done now. Some gardeners grow their plants and arrange them when planting. By this method some of the more difficult plants are liable to be neglected in the desire to obtain quantity in preference to variety. There is also the possibility of growing too many of one sort, and not enough of another to fill a bed. When a place is very well supplied with houses and frames in which to grow the plants and unlimited labour to attend to them, the latter remark will be of no consequence. Such gardens, however, are few and far between. The repeating of the same bedding arrangements year after year are not desirable, unless by special request of the employer.

COLD FRAMES.—Those which contain Antirrhinums, Calceolarias, Carnations, Pentstemons, Stocks, Violas, &c., require very little water at this season. The chief attention necessary is to remove all damp and decaying leaves. Protection must be afforded on cold nights by covering the frames with long litter.

LABELLING.—The reason usually given for not using more labels in a garden is that they are unsightly. To what extent such is the case rests almost entirely with the gardener. In some public parks and gardens the labelling of trees, shrubs, and plants, has fortunately received more attention during the last few years, although much more work in this direction still remains to be done. In private gardens it is not necessary or advisable to do too much; a certain amount, however, should be done. Employers and their friends, especially those who take a keen interest in horticulture, when walking round the garden derive more pleasure from it if they are able to find the name of a particular plant or tree without having to send for the head gardener. Another important reason for labelling is to enable the young men employed in the gardens to learn the names, for are not these the men who will have charge of our gardens in years to come? Names may not teach men to grow plants, but a good knowledge of plant names is nevertheless very essential.—A. O., Kew, Surrey.

The Kitchen Garden.

JERUSALEM ARTICHOKE.—These may now be lifted and stored in a cool shed, or in a Potato cellar. They should have some moist sand mixed in with them to keep them from shrivelling. They should be carefully graded to size, the largest being put aside for the kitchen, and the next size will be required for planting, while the smallest may be given to the pigs.

SURFACE DRESSINGS.—Any crops which may be improved by a dressing of manure should receive attention. A surfacing of half-decayed stable manure will be of great value to spring Cabbages. Apart from the manurial value of the dressing, it will prove of the greatest value in case of severe frost, keeping the stems and hearts from becoming frozen or from thawing too suddenly. When plants are frozen during the night and are quickly thawed during the day, this is far more destructive than continual frost. If, therefore, a dressing of half-decayed manure is placed between the rows it will check this to a great extent.

BROAD BEANS.—A row or two should now be planted on an early warm border. I find the short-podded varieties fill a little earlier than the long-podded kinds, as well as being somewhat dwarfer. However, there are several very good kinds of the long-podded varieties well adapted for early planting.

EARLY PEAS.—An early border may also be sown with a good dwarf Pea, Green Gem is a very good and quick growing variety; so is Chelsea Gem. Early Giant is a later growing sort, but perfectly reliable. Last year this proved first class despite the wretched cold weather during May and June. The sharp frost did not hurt it in the least.

POTATOES IN FRAMES.—No time should be lost with these. Mild hotbeds should be made up on which frames can be placed, and here an early start may be made. The beds should be made as advised for Asparagus. Place 6in of good light soil on, and this should be allowed to settle for a few days before the tubers are planted. The lights should be placed on the frame, but they should not be shut down closely. Keep a little air on at all times to allow the steam to escape, and thereby to dry and warm the soil. May Queen and Snowdrop are very reliable sorts to plant.

RHUBARB AND SEAKALE.—More of these should be covered with heating material to succeed that now in use. It is only necessary to remind those who are not familiar with forcing the roots outside to be careful not to allow the manure to become overheated and burn the crowns. When this happens it will ruin the crowns entirely. They are of no further use, and should be destroyed and new ones planted.—A. T., Cirencester.



Successful Wintering of Bees.

It is not intended to go into a dissertation upon the merits and demerits of all the devices for wintering; it is sufficiently obvious from the frequency with which bee-keepers are heard lamenting the death of some stocks in spring. This to them is inexplicable, as in many cases they state they had plenty of food. In many of the cases it is solely due to the incompetence of the bee-keeper himself, and his ignorance of the laws of Nature. Irrespective of these losses many apiarists will admit that many of their stocks when opened in the early spring are weaker numerically than when they went into winter quarters. This should not be, and properly kept bees will be stronger when first opened if a knowledge of hibernation is obtained.

Hybernation.

To obtain a more intelligent understanding of this term it is necessary to ascertain what is defined by "hybernation." Where there is much interference with the natural position of the brood nest it is of the utmost importance that the bee-keeper should clearly comprehend this. Take queen raising and stock selling for instance, where to make up a good six-frame nucleus the two outside frames containing pollen and stores have to be sent away. If this is done in the late autumn, where is the stock, or portion of it which is left, to obtain its pollen stores for spring breeding from? If a creature is able to exist inactively for a period on a store of nutriment laid up it is said to hybernate. The best examples are bats in this country, which are perfect hybernators. They never awake to seek nourishment, as their principal food being insects there would be none for them. They simply hang, sunk in the deepest lethargy, animation being almost entirely suspended. The notion, however, that this semi-dormancy is caused by cold is erroneous, as whether in hot or cold climates the period of complete rest is an absolute necessity, and to this law of Nature there is no exception.

The reason why some foreign queens and their progeny winter so well in this country is due to the fact that they can bear transportation to a colder region better than queens of cold climates, endure the removal to those which are warmer. There is this difference, however, between the hybernation of bees and bats; the latter, instead of keeping up a high temperature, as is the case with the former, they actually become colder than many cold blooded animals, the temperature of the body following exactly that of the surrounding atmosphere. During true hybernation the breath is almost entirely suspended, but the true hybernating state is so delicate that the least disturbance is sufficient to cause an increase in respiration, and a rise in temperature of 20deg or more in a minute or two. The cause of the hybernation of the bee is to reduce the bodily functions to the lowest ebb compatible with the retention of life within the frame. Those animals or insects which awake at intervals to partake of nourishment are only partial hybernators. Bees are not true hybernators, but remain quiescent in a compact cluster, respiration is almost imperceptible, taking a little nourishment occasionally, and then relapsing into their former condition, but in reality full of life and activity within, ready for the coming spring, when the insect at last shakes off the torpidity and returns to its lively habits; should this enforced quietude be disturbed the bees are quite able to fly at the intruder. This can be proved conclusively in winter by removing the quilt, and it will at once be found that the bees turn up their abdomens and eject a little formic acid. The heat the bees generate they economise by forming a cluster between the combs.—E. E.

Trade Catalogues Received.

Seeds.

- Carl Beck and Co., Quedlinburg.
 James Carter and Co., 97, High Holborn, London.
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 Webbs, Wordsley, Stourbridge.
 Horace J. Wright, 32, Dault Rd., Wandsworth.
 W. J. Godfrey, Exmouth, Devon.—*Chrysanthemums*.
 W. H. and H. le May, 67, Borough High St., London.—*Annual Clover and Grass Seed Report*.
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UTILISING SPACE IN UNHEATED VINERY (J. C.).—It is folly to seek any great advantage from growing of many things in a house that is only suitable for few. Cucumbers, also Melons, would do fairly, but Tomatoes better than either. Small salading might give you some return; and Seakale, Rhubarb, and Asparagus gently forced, commencing, say, the beginning of February, would answer, the vapour of the fermenting materials not injuring the Vines in a dormant state. The fermenting materials if placed upon the Vine border must be removed ere the Vines have rooted much into them; better if it be done before.

IRON PILLARS FOR ROSES (R. I. S.).—You can have iron stakes of inch-round bar iron, which should have four prongs, each of about 18in in length, for securing in the ground, or you may have the iron rods leaded into stone. We should not, however, have solid iron, but procure lengths of wrought-iron piping 1½in bore, and let the socket end into stone 6in and run with lead. The stones should be about 15in square and covered about 4in deep. The pipes should have four coats of red-lead paint. To keep water from the pipe a screw cap or plug may be employed. Any ironmonger would supply the pipes, and any mason would fix them in the stones. A wire from each pillar would do more harm than good, as they are in a curved line, unless you were to have a stay to each and on the inside of the curve.

PLANTING STRAWBERRIES (Caution).—The land would be better trenched two spits deep, half the manure being placed between the top and bottom spits, and the other half upon the surface. Ploughing 7in or 8in deep, however, would answer, giving the amount of town manure you propose before ploughing, doing the work at once, so as to give the land the benefit of a winter's frost. Couch Grass, Dock, Dandelion, Plantain, and other deep-rooted weeds should be thoroughly cleared, as these coming up in the Strawberry plantations are extremely troublesome. Plant in rows 2ft 6in apart, and the plants 2ft asunder in the rows. You may calculate upon a pound weight of fruit per plant in a good season, but an allowance of at least half should be made for loss from adversity of seasons. Planting in March you will not have any fruit worth mentioning the first season, but a full crop the season following.

WHITE MITE ON ROOTS OF FERN (Adiantum).—The minute white soft creatures are the larva of the mite named *Hoplophora arotata*, which is sometimes found at the roots of the Grape Vine, and many other ligneous and herbaceous plants. In the larval state it is white and soft, but in the perfect state has a chitinous coat, which is so narrow that the animal topples over on its side the moment the limbs are withdrawn. So far as we have ascertained it lives exclusively on dead organic matter, such as the decayed portions of roots, and has been regarded as depredatory on *Tysoglyphi*, but this is certainly erroneous. The mites may be destroyed by watering the plants with a solution of corrosive sublimate, loz dissolved, or as much of it as will, in a gallon of hot water, the corrosive sublimate being finely pulverised when had from the chemist, and it must not be handled, but placed in a wooden vessel or barrel and the hot water poured on, allowing to stand overnight. Pour into the vessel thirty gallons of water, and allow to stand five or six hours, during which time thoroughly agitate several times to ensure equality of solution before using. As much of the corrosive sublimate solution should be given as in an ordinary watering. The corrosive sublimate is a strong poison, but is not such at the strength named to work injury unless taken into the stomach. There was not any shoot of Black Currant covered with black shining vermin, which are probably the eggs of aphides, in the parcel.

RASPBERRIES UNFRUITFUL (H. L. E.).—The situation is unquestionably the cause of failure, the shade being unfavourable to the perfection of the growths. If they are a good kind you may safely make a new plantation from them, but choose an open though sheltered situation. Manuring would help, and so would watering, the fruit to swell, but the lime roots would appropriate a good deal of both.

EVERLASTING AND ORNAMENTAL GRASSES (C. K.).—*Acroclium roseum* and var. *album*, *Ammobium alatum*, a small white Everlasting; it and the two preceding being half-hardy annuals. *Helichrysum bracteatum* and var. *alba*, *H. monstrosum album flore pleno*, and the following double varieties of *H. monstrosum flore pleno*—*atro-coccineum*, *luteum*, *purpureum*, and *roseum*; *Rhodanthe maculata*, its white variety (*alba*), and *atrosanguinea*, *R. Manglesi*. The *Rhodanthes* are half-hardy annuals. For quantity, the best plan is to procure a "collection of double *Helichrysma* in ten varieties," they being the best, adding the *Acroclium*, *Ammobium*, and *Rhodanthe* if you wish, but they are not nearly so profitable. Grasses are—*Agrostis nebulosa*, *A. argentea*; *Briza gracilis*, *B. maxima*; *Eragrostis elegans*, *Lasiagrostis argentea*, and *Stipa elegantissima*.

SCALE ON PEACH TREES AND MYRTLES (G. M.).—The sprigs of Myrtle and the shoots of Peach trees are infested with brown scale, which causes the leaves and everything under and around the infested plants to be covered with a gummy exudation or secretion called honeydew, and this drying affords a medium for the development of black fungus. If you remove the scale the other appearances will disappear. A solution of softsoap, half a pound to a quart of water, adding to it half a wineglassful of spirits of turpentine, and thoroughly mixing and applying with a brush will destroy it, applying it at a temperature of 120deg to 140deg, taking care not to allow it to run down to the roots, but to apply it to every part infested with the insects, both sides of the leaves, and all round the shoots.

ERECTING A VINERY (H. R.).—Arrange by all means to have the Vines planted inside, 13in to 18in from the front wall. It will be well, if the subsoil is clay or wet, to pave the bottom either with bricks or pebbles, and run the joints with cement. This base should have an incline to a drain, or rather to a certain part where should be a drain, and laid upon the cemented floor, and this drain must have proper fall and outlet. You will need a drain for the outside as well as inside border, and lengthwise of the border, having the inside one about 3ft from the front wall, and the other about 4ft from the outside of the border. The front wall ought to be arched, having 14in pillars, with 2ft to 2ft 3in openings between each. The top of the arches should be flattish, so as to raise the top and allow the roots to have freer access, nearer the surface, to the outside border than were the arches semicircles.

LOMARIA GIBBA UNHEALTHY (J. S.).—We do not think the plant would suffer in so short a time from imperfect drainage. A more likely cause is injury to the fronds from too drying an atmosphere or an attack of insects, probably thrips, which you could have enabled us to determine had part of a dead frond been enclosed to us. We should not cut away more than the dead part of the fronds, and beyond rectifying the drainage and any sodden and sour soil, replacing with fresh, we should not interfere with the roots; keep the plant in a rather close and moderately moist atmosphere, affording a temperature of 50deg by day, and night 45deg to 40deg during the winter months from fire heat, which will, of course, be higher in mild weather from natural agency. When the plant commences throwing up fresh fronds repot, cutting away the old fronds, and encourage growth by a rather higher, closer, and moister atmosphere.

TREES FOR LAWN (C. J. W.).—The following are fine evergreen trees for a lawn, but we should advise you to employ them at the margins or boundary, leaving the centre comparatively open. Many lawns are spoiled by trees upon them, as if the object were to cover it with trees without any regard to effect:—*Abies excelsa alba*; *Cryptomeria elegans*; *Cupressus Lawsoniana* and vars. *gracilis*, *glauca nana*, and *stricta*; *Juniperus chinensis*, *J. virginiana*; *Picea grandis*, *P. nobilis*, *P. Nordmanniana*, *P. pinsapo*; *Pinus excelsa*, *P. oembra*; *Retinospora pisifera*, *Taxus adpressa stricta*, *T. pyramidalis*, *T. elegantissima*, *T. fastigiata*; *Thuja borealis*; *Thuja Lobbi*, *T. orientalis*, and vars. *aurea* and *elegantissima*; *Cedrus Deodara*, *C. atlantica*, and *Araucaria imbricata*, with *Wellingtonia gigantea*, which you name. These are all evergreen and Coniferae. Have a few gold and silver variegated Hollies, and a Portugal Laurel or two, and some *Rhododendrons* as specimens. We should also have a few weeping trees, as *Betula laciniata pendula*, *Fagus pendula*, *Fraxinus excelsior pendula*, *Salix americana pendula*, *S. caprea*, *pendula*, and *Camperdown Elm*. A few flowering standard trees, as *Cerasus japonica* multiplex, double pink, white, and scarlet Thorn, *Cytisus pendulum*, *Liriodendron tulipifera*, *Magnolia conspicua*, *Pyrus Scheideckeri*, and *Pyrus præcox*.



The Year 1907.

We have once more come to the end of a year, with its hopes, promises, satisfactions, and failures, and on the whole we think that agriculturally 1907 will be considered above the average. Of course, the actual results cannot be summed up until every item of crop or stock is realised, yet we have reason to think that satisfaction will be the prevalent feeling.

The curious thing about 1907 was that it was wet and cold with a late harvest, yet, except in a few very late districts, the crops were good and secured in fair condition. Another remarkable thing was the spring seed-time being both late and none too favourable, yet the results were good, both barley and oats being excellent and bulky crops. There was a week of very warm forcing weather in May which gave spring corn a send off, which would be very welcome every year. We had similar May weather in 1892 or 1893, we forget which, but our barley crop did not forget it, and was a bumper.

Capital markets for beef and mutton in the spring struck the first note of encouragement, and wool met a good trade in the early stages, though it has been disappointing since. Wheat was slow to sell in spring at 28s.; but went up rapidly in the summer, and reached nearly to 40s., and though it now stands a few shillings lower, the price shows a very satisfactory advance, and we believe that our wheat crop is better than many have thought, so farmers should be reaping a good advantage over previous years. Then barley, which was quite the crop of the year, has met with a surprising demand considering the bulk of the home supply. How many times has the British farmer with a barley crop below average, been flooded out of his own market by foreign imports. But not this year. The foreigner failed the brewer on this occasion, and those farmers who were alive enough to grasp the opportunity, got possession of some big cheques in October. Since then things have been easier, but dry sound corn may readily find a customer. Unfortunately, through neglect about thatching, much good barley has been ruined in the stack or rendered unthreshable until spring.

Farmers who were fortunate enough to have a stock of potatoes last spring did well, for almost famine prices were reached in May and June, and many are doing quite as well, if not better, from this year's crop. The crop is so variable that where one grower or many may be losing money, another may be making a small fortune. Potato growing always was a gamble, but never more so than in 1907. The puzzle has been to choose the best variety, and we are as much in a mist to-day as ever we were. A great deal of money has been made this autumn by those people who were fortunate enough to plant the right brand of King Edwards. The wrong brand produced nothing but a few bags of offal.

The crop of lambs in 1907 was not a heavy one, but the lambing in other respects was most fortunate. There was a very small loss of ewes and young lambs, and although the returns show a decrease of sheep as also of lambs on June 4th, this may be put down to the urgent calls for mutton and lamb made in the spring months. Notwithstanding the fall in the price of wool, the sheep is still the most valuable asset the farmer possesses, and we think he is fully justified in placing full confidence in its capacity as a money producer.

The cattle trade has been fair throughout the year. Store cattle in spring were cheaper to buy than they have been for some years, and as beef has kept an even price, graziers must have had a better year. There was plenty of grass, but a little more sunshine on it would have made it better meat for the bullocks, and they would have fed up a little quicker. That they did fairly well and went to the butcher as early as usual is shown by the fact that there has been no autumn glut of half-fed cattle, and that the Christmas markets have not been overdone except in isolated cases.

Pigs and pork have not been quite as profitable as they were a year or two ago, but such figures as 8s. and 8s. 6d. per stone could not be expected to last long. Seven shillings has, however, been made generally, except for very heavy or coarse animals, and we imagine that pig breeders and feeders would be quite satisfied to go on at that price. The drawback to the

pig breeder has been the high price of pig foods. The whole of the year millers' offals have been very dear, and a scarcity of offal potatoes in the autumn tended to make matters worse. Since then there has been a fair supply of damaged corn, and pig potatoes are more plentiful, but are still dear at 30s. per ton. Small pigs are low in price, but we think that the outlook is satisfactory. Horses, like other stock, have shown a clean bill of health. Foals were not very plentiful, but as very few were lost the number reared would be above the average. In spite of motor power a good horse is still easy to sell, and farmers do not seem to have lost heart about breeding. The satisfactory feature of 1907 has been the better market for grain, and if the present range of prices continues the prospect for agriculture will be bright.

But we are commencing the new year with one serious drawback, which is the waterlogged condition of the land, and if mild weather continues spring sowing will, we fear, be a difficult matter. A month's real winter would set everything right, and hoping that we have a spell of frost coming, we wish our readers a prosperous and happy year of 1908.

Another correspondent, in commenting upon the opening year, says:—Fortunately in Britain we begin the year at a time when the days show perceptible signs of lengthening, and old and young alike are naturally stirred to fresh efforts. The year 1907 was in many respects a disappointing year, especially when judged by climatic conditions, as we were far too little favoured by genial sunshine; and although the rainfall was by no means heavy in the aggregate, yet for a great part of the year rain fell almost continuously. The outstanding feature, however, was that, notwithstanding unfavourable climatic conditions, 1907 proved on the whole a good year for agriculturists and horticulturists. Taken collectively crops were good, and prices firmer and slightly higher than in many previous years. For these reasons many connected with intensive culture, as represented by horticulture, or culture on a broader scale as represented by agriculture, will begin the new year with lighter hearts and greater eagerness than in some previous seasons.

Alike with agriculturists and horticulturists, of varied degree, there are so many directions in which they can turn their energies so as to lay the foundation of future success. The daily work should, as a matter of course, be done to the very best of their ability—not merely in a mechanical manner, but also by the exercise of their mental powers for the development of still greater intelligence. Many conflicting ideas prevail in regard to the performance of various operations, and young men who gain experience in gardens situated in widely separated districts may thus obtain ideas and information of the greatest value, provided they also cultivate a habit of thinking for themselves.

Work on the Home Farm.

We have had a very mild Christmas, and with the land in such a wet state no pressure of work, so both men and horses have had an easy time. We keep ploughing where it is possible or advisable, but sometimes it is not advisable where possible. Winter ploughing must be finished, and turnip land also behind the sheep. The turnip folds have been in such a bad state that the ploughing goes very badly, but we prefer to plough if possible rather than wait. A second ploughing will be necessary before barley drilling time, but we have always found a second ploughing pay unless there has been such severe frost as to make it unnecessary. Winter frost is the cure-all for land so waterlogged as it is now, and frost has so much more effect on land which has been ploughed than the work is worth doing even if it is done badly. Hedging finds employment for a hand or two, but competent men are more and more difficult to find.

We were talking to a man, a sort of free lance, who undertakes skilled work, such as shearing, thatching, hedging, &c. He says he has more hedging before him than he can do, as he only finished thatching last week, having had eleven continuous weeks of it. He gave a very poor account of some stacks which he had thatched. Surely thatchers must be very scarce, or farmers very easy going, if a man can find work of that kind right up to Christmas, even in such a late and wet season as the past has been.

As we said, sheep folds have been seas of mud, and for a month ewes have been living more on grass than on turnips, and the feeding sheep have been most uncomfortable. They have had plenty of back lair, but it has been all alike, and their wool is so clogged up that a good deal will be lost. A wet winter knocks pounds off the weight of wool. There is an improvement in the potato trade, but only slight, and there is no great movement. Delivery is proceeding very slowly, and the horses should be thankful, for the roads are very heavy. Pig potatoes are still scarce and dear, although so many pigs have been converted into bacon. Fowls have been plentiful, but ducks very dear, 5s. each for good ones. Hens are beginning to lay, but are rather slow about it.

BY ROYAL
APPOINTMENT TO H.M.
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Journal of Horticulture

THURSDAY, JANUARY 9, 1908.

Novelties of 1907.

AMONG the plants that obtained either an award of merit or a first class certificate from the committees of the Royal Horticultural Society during the past year, there are, as usual, several that are certain to become widely known and grown, and which will fill a more or less permanent position. Numbers of others have made their debut and been honoured, but if they continue for a season or two they will have served their purpose, and will be superseded by others, no better, no worse. The last reference refers of course to some of the florists' flowers and orchids, of which it may be said the supply never fails.

Turning firstly to the hardy border plants, one must accord a distinguished place to the Montbretias, otherwise Tritonias, which came from Major Petre's garden at Norwich. Three of them—namely King Edward, Lady Hamilton, and Lord Nelson, obtained awards. They are distinguished by very large flowers, tall strong stalks, and rich golden and crimson colours. Already these cross-bred Montbretias are being widely cultivated, for they yield a wealth of glorious flowers during the early days of autumn. Some of the first-raised kinds are becoming known, and on the fruit tables at the last Shrewsbury Show we observed how well they served the purpose of decoration.

Those who have not seen or previously heard of the new form of Golden Rod named Solidago Virgaurea "Golden Wings," will do well to make a note of it. This appeared during September and was exhibited by Mr. Eric Such, of Maidenhead, the well known cultivator of outdoor Chrysanthemums. The inflorescence is densely plumose and feathery, of a rich golden colour. For the market grower equally with the private gardener, Solidago "Golden Wings"—if it maintains its character—will be highly serviceable.

The new Primulas, Cockburniana and Unique,

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the latter being a hybrid between Cockburniana and pulverulenta, are the forerunners of a probable race of brilliantly flowered dwarf border varieties; and lovers of this remarkably decorative genus hailed their introduction with great delight. *Meconopsis racemosa*, too, is a thing of beauty and merit, having gentian-blue campanulate flowers. *Matricaria inodora* fl.-pl. Bridal Robe with double, white, rosette blossoms is a free-growing, vigorous, easily grown border plant, and it, too, may prove to be a welcome addition. The new strain of Scabious (*Scabiosa*) sent out by Messrs. Dobbie and Co. must also be kept in mind. The day that they appeared in the Royal Horticultural Hall there was a continual press of ardent admirers handing in their orders, which speaks well for the effectiveness of these easily-raised biennials. The flowers are large, and the colours most varied. As to Sweet Peas, Dahlias, and *Chrysanthemums* our pages have borne sufficient testimony, and so far as memory serves us, there are no outstanding subjects either among the Delphiniums, Gladioli (excepting the purple-blue *atroviolaceus*), Michaelmas Daisies, or other plant. But a rockery gem must be mentioned, this being a white form of *Haberlea rhodopensis*.

Special attention might also be directed to Messrs. Paul's *Montanoa bipinnatifida*, which, though not a novelty, has only been recently certificated, and is but little known. The flowers are white, and resemble a single Dahlia, the leaves partly partaking of the Fig tree character, though more elongated. It is only half-hardy, and has been utilised, we believe, in sub-tropical bedding; also as an early-winter flowering plant in pots.

One charming new winter-flowering fibrous-rooted *Begonia* has been added to an already varied list. This is the variety Miss Clibran, from the Altrincham firm. The flowers are produced freely on long branching racemes, are double, and of a rich shade of pink. Several additions were made to the tuberous section in the early part of the year, and it almost seems as if perfection had been reached.

A passing reference is well deserved by the dwarf, compact *Azalea amena* Hexe, with double salmon-pink flowers, which was so admired at the Temple Show. Every greenhouse will be the brighter by its presence. And though seven perpetual-flowering Carnations have won distinction, the giant-flowered Marmion from Mr. H. Burnett is the one novelty that clearly stands foremost. Other greenhouse plants of distinction are *Freesia Tubergini* Amethyst, *Kalanchoe Dyeri*, and *Hippeastrum* Mrs. Carl Jay; while of the ferns, the genus *Nephrolepis* still adds to its charms, the new varieties being Whitman and superbissima. The latter appears to be fit for the cool greenhouse.

Shrubs have not been so numerous. Messrs. Veitch and Sons, of Chelsea, still maintain their wonted supply, the newcomers being those that Mr. E. H. Wilson introduced from Western China. The four best apparently, for garden purposes, from amid a considerable array, are *Actinidia chinensis*, a small tree; *Berberis Wilsonae*, an alpine species; *Cotoneaster applanata*, a distinct kind, forming a shapely bush, and berrying freely; and the handsome *Viburnum rhytidophyllum*. These are each sure of a place in the best gardens of the British islands.

Roses have yielded some sterling additions, as witness Joseph Lowe, Hugo Roller, Avoca, Lady Helen Vincent, Joseph Hill, Snowstorm, Dr. Wm. Gordon, Souv. of Stella Gray, Mrs. Harold Brocklebank, and Mrs. Munt.

This is surely a goodly assemblage, however, and again we would impress the fact that the subjects which we have thus briefly dwelt upon are only the finest of a more numerous host.

In the process of selection to which the selective cultivator subjects the flowers which it is his aim to "improve," and to which we owe a very large percentage of our most attractive horticultural gems, there is formed in many instances a sort of ideal type of perfection towards the attainment of which the selector directs all his efforts, by eliminating those which stray from the direct line, and choosing those which most closely adhere to it.

Floral Ideals. All, however, that he can do in this connection is to trust that Dame Nature will help him by inspiring, as it were, the right spirit into the offspring of the plants he propagates. These vary it may be in all sorts of seemingly wayward ways which he cannot influence one jot. All he can do is to watch for indications (they may be faint or they may be distinct) which approach his ideal, and encourage these by selection and special care. Very often, however, that ideal is not Nature's: it contravenes some hidden law ungrasped by man, hence he is constantly frustrated; or maybe, when a triumph is achieved, she handicaps it with sterility.

Undoubtedly the best ideals of floral beauty are those which adhere most closely to natural types. Somehow or other in the process of evolution, the interaction of the insect world and the floral world has led to the production of many flowers of the greatest charm from the human point of view, so that

apart from the humbler loveliness of many of our native flowers, our expert plant hunters in tropical, sub-tropical, and even temperate regions have discovered and introduced many floral types which cannot be excelled by the florists' highest ideals. On the other hand, however, a considerable number of our finest decorative flowers have been derived from very inferior forms, so far as size and brilliancy and variety of colour are concerned.

The pursuit, however, of a fixed ideal in a definite direction, and the resulting elimination and destruction of all variants in other directions, is fraught with a danger of no small consequence. Nature has a knack of creating quite unexpected "sports," displaying characters altogether different from the parental ones, and consequently quite outside the line leading direct to the florist's ideal. In the young stage, assuming the sport to originate in a seedling, the difference would quite possibly constitute a direct invitation to the selector to weed it out as one of the unfit, as it certainly would be as a contributor to the attainment of the ideal in question. On the other hand, however, it is possible that it represents a starting point for a different ideal altogether, for there are many types in cultivation which are entirely due to Nature's inventive powers in the "sport" line, and would never have otherwise been conceived by man. Sometimes new types start as mere indications; hints, as it were, for the selective cultivator to follow. Smooth-edged leaves show slightly serrated edges, and these, by selection, may result in a few generations in deeply divided leaves, as we see in the fern-leaved sections of normally plain leaved Primulas. So with flowers—smooth petals may break into serrate and even fringed ones, or a few petaloid stamens, at the outset mere deformities, may lead to the finest double flowers.

Obviously, therefore, a slavish adherence to selection in one particular direction, i.e., towards a floral ideal, is a mistake. We have in mind the first indications of crested, as it is called, in tuberous Begonias. Normally, the surface of the Begonia petal is perfectly smooth, and under selective culture and skilful hybridising so large a number of types, single, double, and of all colours were raised that, as in the case of the Dahlia, the possibilities of variation seemed exhausted. Then, suddenly, seedlings appeared, in which the central surface of the petals was broken up by excrescences, and we distinctly remember how judges condemned this as "spoiling the flower," because it was outside the ideal. Begonia growers, however, persisted in encouraging this new feature by selection, and as a consequence we have now a number of beautiful flowers with richly fringed and encrusted petals of generally recognised beauty—a section in itself. The moral of which is, that it is well for the selective cultivator to keep an open mind and watch for other indications as well as the main one he has in view.

We regret to have to acknowledge that the National Potato Society has closed its accounts and has wound up its affairs. The society has had a brief, but not inglorious career. Founded only in December, 1903, it seemed to have

The End of the Potato Society. established a firm hold upon commercial growers of Potatoes, and at once set about doing good and useful work by instituting trials of varieties at many different places throughout the country. The information gained from these trials and experiments was published in the society's Year Book, together with a variety of other excellent and helpful matter. Of course, the croakers (who are always with us—and sometimes they are a benefit) said that when the Potato boom had ended, as it speedily did, so would the National Potato Society. But the N.P.S. was established to combat the tactics of the manipulators of that boom, and to steady the Potato trade, while doing everything possible to improve it. Another object was to raise Potato cultivation from the position of an empirical industry to one that might warrantably be called scientific and completely business-like.

The society deserved to have been kept alive, and it is comparatively seldom that such horticultural institutions are allowed to die ineluctably in this country. We think that the interests of the Potato industry lie quite as much in a horticultural, as in an agricultural direction, though latterly, when the exhibition was held at Vincent Square, there were broad hints expressed that Smithfield, during the Cattle Show week, was the place to hold it. So long as £2,000,000 worth of Potatoes are imported into Great Britain; so long as there are diseases and pests to be combated; and while there are so many matters of a cultural nature requiring to be carefully tested or proved, so long ought there to be a Potato Society.

At the end of its first year the N.P.S. had 2,000 members, and notwithstanding very heavy expenses, it cleared nearly £50. Practically all the county instructors acted as organising secretaries, and were members of the trials committee, while eminent professors of several agricultural colleges lent their aid. Lastly, though we believe its services were never requisitioned, there was a Board of Arbitration, to act if called upon in disputes at law.



Cypripedium x Moonbeam.

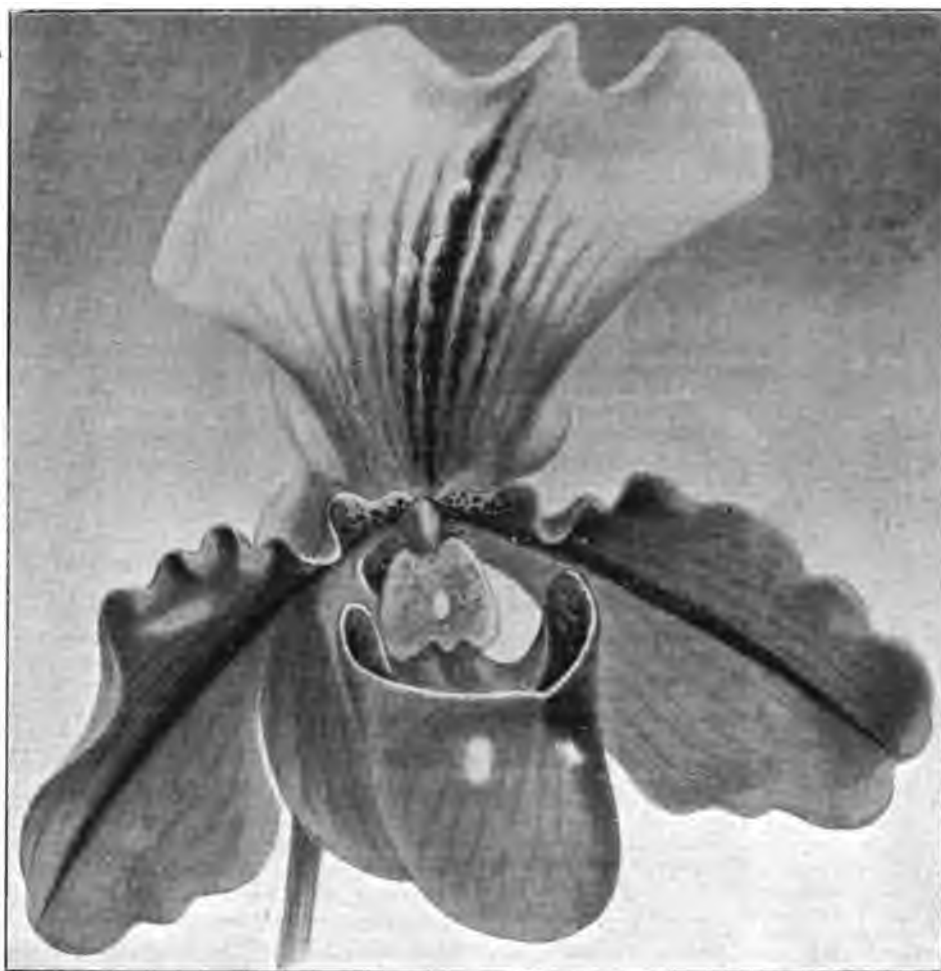
By Mr. Shayler's drawing of this new and magnificent Cypripedium, our readers who did not see it on the 31st ult. at the R.H.S. Hall will now be enabled to judge of its size and appearance. It is indeed quite distinct from any other Cypripedium, and is undoubtedly "a grand flower." When staged by Major Holford (grower, Mr. Alexander), Westonbirt, Tetbury, Glos., it obtained a first-class certificate. The parentage is Thomsoni x Sallieri Hycanum. The wavy dorsal is 3in broad, deeply indented in the middle, which is purplish. The base is of an emerald tint, the upper portions white. The wavy-

Soil.

Regarding compost, I should like to mention that Polypodium fibre is largely replacing peat in many collections; while Osmunda fibre is spoken of in glowing terms by some growers; but this I have not tried. With Polypodium there is scarcely any waste, and it is reputed to be cheaper, and when used in conjunction with peat and small crocks an improvement is effected in the growth of Cattleyas, Lælias, and Odontoglossums. For Cypripediums it is useless, as nothing can surpass a rich fibrous loam in proper proportions with peat, &c. The progress made during the last ten years, from a cultural point of view, is marvellous; and every orchidist must move with the times if he wishes to secure the best results.

R.H.S. AWARDS AND NEW ORCHIDS.

According to my record, the R.H.S. has awarded thirty-nine F.C.C.'s and seventy-two A.M.'s. Botanical certificates have been few in number, while the cultural commendations are about the average, although one sometimes wonders why recently imported plants receive this coveted recognition. The Lindley medal has been given on three occasions, once to Lord



Another Magnificent Cypripedium (C. x Moonbeam).

edged and varnished-looking petals are bronzy-green, and so is the pouch, the former also being lined in the centre with purple. The flower is 5in wide, and as deep.

A Review of 1907.

The majority of orchid growers can look back upon the past season with a great amount of satisfaction. Although the season was a backward one, and detrimental to some phases of plant life, orchids did not suffer to any serious extent; in fact, the weather was ideal for the cool divisions; while Lælias and Cattleyas have equalled last year's result, and perhaps the foliage is slightly more green, which denotes that they do not require so much sunlight as we sometimes imagine. If we have any cause to complain then, it lies in the direction of Dendrobiums (a neglected genus), and similar orchids that need a thorough ripening of the pseudo-bulbs to induce floriferousness.

Rothschild (gardener, Mr. Dye), for a splendid group of *Lissochilus giganteus*; and twice to Mr. Alexander, grower to Major Holford, (1) for a remarkable plant of *Lælia elegans*, which carried 230 flowers; and (2) a magnificent group on October 29, every plant being a fine specimen. It was undoubtedly the finest collection ever staged. From Westonbirt there came a grand lot for the Temple Show, which gained the Veitchian cup, and was indeed a triumph. In addition to this, two gold medals have been won, and the F.C.C.'s are numerous. Hardly a meeting passes without some treasure from Major Holford's rich and varied collection. Sir Jeremiah Colman (gardener, Mr. W. P. Bound), has secured three gold medals; also one to Mr. Moore, Chardwar, for a group of finely grown Cypripediums, consisting largely of insigne varieties and their numerous hybrids.

Among individual plants exhibited during the year will be found *Odont. caloglossum*, *ardentissimum* Herbert Goodson,

Robsonæ, gandavense, crispum Solum, John Clarke, and eximium King of England—all gems of the first water. Another beautiful and interesting plant was *Arachnanthe Rohaniana*; while the new *Cypripedium Tibeticum* is a novelty for hardy plantmen. Two other striking subjects are *Brasso-catt-lælia Veitchi* and *B.-c.-l. Fowleri*. *Cattleya Iris His Majesty* is the finest yet flowered of this useful hybrid. The *Odontodas* continue to appear, and three of recent introduction are *O.'s Bradshawæ*, *Craveniana*, and *Devossiana*, the latter linking up the *Edwardi* section of *Odontoglossum*. *Cypripediums* have not yielded anything extraordinary; and the chief attraction among *Dendrobiums* has been the new *D. regium* from India.

LOSSES DURING 1907.

Happily these are not numerous. They, however, include Sir Frederick Wigan and Mr. R. I. Measures, both of whom took a great interest in orchidology. The former had brought together a collection of valuable plants which were often on view at the various shows and meetings of the R.H.S. The *Phalenopsis* and *Bolles* were remarkably well done at Clare Lawn. Mr. Measures' favourites were *Cypripediums* and *Masdevallias*, several of which bear his name. Both collections are now a thing of the past, having been sold at the death of their respective owners. But as one drops out another takes his place, and so orchid growing continues to flourish. Although large collections may not be the order of the day, orchids are nevertheless cultivated to a great extent for cut flower and for decorative purposes, and it behoves every young gardener to get some knowledge of orchids, and thus be prepared for the time when he may be called upon to superintend a group of plant houses, which perhaps contains orchids. In conclusion, I wish every reader of the *Journal of Horticulture* a bright and successful New Year.—T. A.

Compost and Its Preparation.

Now that the new year has begun one urges every thoughtful orchidist to prepare for the coming season by getting together quantities of the various ingredients which, when mixed together, constitute the compost or potting material. Probably one of the most important parts is good fibrous peat, which is pulled into pieces about the size of a large walnut, removing all the sticks, and finally sifting out the finer particles or dust. The peat sticks may be chopped to a convenient size, when they can be dried and stored for future use as drainage for *Masdevallias* and *Odontoglossums*.

Polypodium fibre is now largely employed as a rooting medium, especially in conjunction with peat; but this should only be included when repotting *Lælias*, *Cattleyas*, or *Odontoglossums*. It is prepared in a similar way to the peat, but even the smallest piece of the creeping rhizomes must be rigorously excluded when picking it over, or they are a source of trouble afterwards by sprouting out, and would probably take possession of the pot if allowed to remain. When all the rhizomes have been taken away it is then cut into the desired length, which is best accomplished with a pair of sheep shears. From an economical point of view, *Polypodium* is before peat, because there is practically no waste.

Partly decayed Oak or Beech leaves have proved beneficial to such genera as *Odontoglossums* and *Oncidiums*. They should be collected in the autumn or at once and be stored in a dry shed where there is a free circulation of air, but at the same time be kept in a dry condition. It will be necessary to chop the leaves and rub them through sieves of various sizes, from half an inch downwards, but all dust must be discarded before mixing them with other soil. Select only the best and cleanest leaves, and if any doubt exists concerning the presence of fungi, it will be advisable to place them in bags, which ought to be plunged in a copper of boiling water and afterwards dried.

Sphagnum mors is almost a necessity, and it should always be used in a fresh and living state, taking care to watch closely for any slugs when sorting the nice green heads from the weeds. When it forms part of the potting mixture it must be chopped first, but for surfacing such plants as *Phalenopsis* this is not needed.

Coarse silver sand and finely broken potsherds are generally in demand at potting time, so no opportunity should be lost in securing a quantity of the latter by breaking them up sufficiently small to pass through a 3in sieve.

The grower who possesses a little forethought will at once see the wisdom of the above remarks, and where *Cypripediums* are grown in any quantity, a little fibrous loam, if got together now, will be acceptable when the time comes round to repot these autumn and winter-flowering orchids. All plant cleaning, pot washing, and the cleansing of the roof glass should be pushed on without further delay. The blinds can also be examined to ascertain how many will go another season. This is very important, because if the order for new ones is deferred till a week or two before they are actually needed there is a possibility of not having them at hand. Then the sunshine appears somewhat unexpectedly, and in force, as is sometimes the case with our fickle climate, especially in the early spring. —T. ANSTISS.

NOTES



Royal Horticultural Society.

The next exhibition and meeting will be held on January 14. A lecture on the R.H.S. exhibitions will be delivered by Mr. John Gregory.

Appointments.

Mr. Thomas Field, for several years foreman at Buxton Park Gardens, under Mr. Prinsep, as head gardener to Douglas Freshfield, Esq., Wych Cross Place, Forest Row, Sussex, in succession to Mr. F. G. Drew. Mr. Drew has gone as head gardener to the Hon. Ivor Guest, M.P.

Sussex Weather.

The total rainfall at Abbots Leigh, Haywards Heath, for the past month was 3.41in; being 0.60in above the average. The heaviest fall was 0.62in on the 6th. Rain fell on fifteen days. Total for the twelvemonth, 26.35in, which is 3.40in short of our mid-Sussex average. The maximum temperature was 55deg on the 8th; the minimum 28deg, on the 7th; mean maximum, 55.22deg; mean minimum, 36.19deg; mean temperature, 40.70deg, which is 1.03deg above the normal of the month. The first half of December was wet and stormy. It was then variable till the 25th; after that till the end the temperature in the shade remained night and day just above the freezing point, with a cold, dry N.E. wind. The dust followed the motor cars along the roads on the 31st. No snow has fallen in this district this autumn.—R. I.

Small Holdings.

The Board of Agriculture has issued another circular letter to county councils and county boroughs in England and Wales to obtain a test of the demand for small holdings. "On the receipt of any applications for land for small holdings your council will no doubt endeavour to satisfy themselves as to the qualifications and suitability of the applicants, either by personal inquiries by members of the council or persons authorised by them, or by the issue of a form setting out the points on which your council desire information. The Board think that as a general rule such inquiries should be undertaken by means of personal interviews with the applicants, and that sub-committees, consisting partly of members of the small holdings committee and partly of members of the minor local authorities and other suitable persons, should be appointed for this special purpose for each parish or other convenient area from which applications are received."

Sweet Pea Trials.

The committee of the National Sweet Pea Society again propose to hold a further trial of Sweet Peas at the University College Gardens, Reading, during 1908, and shall therefore be very glad if growers will assist in making the trials as complete as possible by sending seeds of new Sweet Peas they may be distributing in 1908, or are getting forward for distribution in 1909. The trial will be an absolutely independent one, and under the able management of Mr. Chas. Foster. Not fewer than fifteen seeds of each variety should be sent, and they should reach Mr. Chas. Foster, Assistant Director in Horticulture, University College, Reading, on or before January 14, 1908. Senders will greatly oblige by indicating the colour section to which each variety belongs, whether it has waved or plain flowers, and whether they would care to have it tested by the side of any standard variety. This information should be on a separate sheet of paper, and a duplicate copy sent to the secretary will further facilitate matters. The committee does not propose to make a charge for these trials, but suggests that a donation be sent to the honorary secretary to help defray their cost. The trials conducted in 1907 necessitated considerable expenditure, and this was defrayed chiefly by private donations. No awards to new varieties will be made at the society's exhibitions in 1908. Awards of merit or first-class certificates will be granted only to meritorious varieties tested in the society's trials at Reading.

Rainfall at Thorpe, Halifax.

The total rainfall for December, 1907, was 4.53in; the first ten days registering 3.20in. The heaviest fall, 0.71in, was registered on the morning of the 7th. The last twelve days registered 0.14in.

Cirencester College.

The vacant professorship of forestry and estate management at the Royal Agricultural College, Cirencester, has been filled by the appointment of Mr. H. A. Pritchard, F.S.I., and Watney Prizeman for Forestry, to succeed Dr. Maw.

The Winter-flowering Carnation Society.

The fourth show of the Winter-flowering Carnation Society will be held on April 1, 1908, in the Royal Horticultural Hall, Westminster. The schedule of prizes is shortly going to press, and 500 copies will be issued, the circulation covering the whole of the leading amateur and trade growers in the country. The hon. secretary is Mr. Hayward Mathias, Lucerne, Stubbington, Fareham, Hants.

December Weather at Desford, Leicester.

Mild and wet weather up to the last week characterised the month of December. Rain fell on seventeen of the first twenty-three days, the greatest quantity, 0.60in, having been registered on the 4th. The total amount for the month was 4.28in. There has been an absence of sharp frosts, as the thermometer only once fell below 30deg, and that was on the morning of the 24th, when it was 28deg. The 19th of the month was very mild, when the maximum reading was 56deg. The mean temperature for the month was 39.3deg, which is above the average. The excessive wet has greatly hindered land work, and we hope for a favourable spring to make up lost time. The last week or so have been bitterly cold, for easterly winds have been keen and strong, almost to a gale some days. On the 2nd, 12deg of frost were registered. Summing up the weather of the past year, the record is a disappointing one, as there have been many cold and sunless days, with frequent rain. There were 149 J.ays on which rain fell, and the amount registered was 31.59in, which is not excessive. The months of June, October, and December were the wettest, over 4in falling during each. February, contrary to the old saying, was the driest month, when only 0.83in was registered.—L. F. D.

"The Journal of the B.G.A."

The third number of the "Journal of the British Gardeners' Association" has come to hand. The first article is from the pen of Mr. A. C. Bartlett, a well-known and successful gardener, and deals with "Testimonials." He concludes by suggesting an official "Character Chart." In "A Gardener's Reflections," Mr. Geo. Tinley points out that in some of our London parks the wages of a gardener are about 27s. per week, whilst road sweepers, working for the same authority, are paid 30s. and over. In another article by "A Member," some very necessary hints are supplied as to the need of greater care in drawing up and insisting upon written agreements between employers and employed. Forms of agreement are given. The writer advocates that working hours being mentioned, and also that the gardeners' duties be properly defined. The report of the conference held at the Royal Botanic Society's Garden, Regent's Park, on September 12, is published in full. Besides other notes and articles a final one deals with the question "Is Gardening a Luxury?" Among other remarks the writer says: "Just think of an estate on which is built a beautiful mansion surrounded by lawns, terraces, parterres, woodland walks, artificial lakes, and the grounds studded with exotic trees of all kinds. Such places do not spring up naturally out of the soil. They are not indigenous to any country, civilised or otherwise. They have to be made, and the making costs a lot of money. How much they are worth may be gauged by the enormous prices some of them realise when put in the market for sale. The beautiful grounds, the noble trees, the delightful rock and water gardens, the herbaceous borders, the exquisite orchids, the luscious fruits from the hothouse and open air, the fresh and succulent vegetables all the year round—all these not only constitute a valuable return for the money spent, but also gratify the senses, please the soul, and keep the mind and body healthy. In addition the produce has a high commercial value."

Rose Catalogues Wanted.

Mr. J. E. Ewing, Whangarei, New Zealand, inquires for copies of Rose nurserymen's catalogues. Will some of our trade rosarians kindly send theirs?

Sweet Pea Society's Schedule.

The secretary of the National Sweet Pea Society (Mr. Chas. H. Curtis, Adelaide Road, Brentford), informs us that the society's Annual and schedule for 1908 will be sent out about January 16.

Royal Meteorological Society.

An ordinary meeting will be held at the Institution of Civil Engineers, Great George Street, Westminster, S.W., on Wednesday, January 15, 1908, at 7.30 p.m. The annual general meeting will be held at 7.45 p.m. Business:—1. Report of the council for 1907. 2. Election of the council for 1908. 3. Presentation of the Symons gold medal to M. Léon Teisserenc de Bort. 4. Address on "Map-Studies of Rainfall," by Dr. H. R. Mill, president.

Fire at Mr. J. Robson's Nursery.

Early on Saturday morning a serious fire broke out in the nurseries of Mr. John Robson, Hale Road, Hale. The flames were first noticed issuing from a potting shed by a night watchman. The potting shed and contents were completely destroyed, and the outbreak also spread to an adjacent shed, but its progress was checked before any great damage was done. The damage caused by the fire amounts to close on £200, and this is covered by insurance.

British Gardeners' Association.

At the last meeting, on December 31, nine new members were elected, making 1,128 since the establishment of the association. The secretary reported that the last issue of the "B.G.A. Journal" had been posted to every member, both at home and abroad. The design for members' certificates was adopted, and it is hoped will be ready for issue in a few weeks. The report of the Richmond and District Branch for the past year was received and discussed, and will be printed in the next issue of the association's journal. Gardeners are reminded that the B.G.A. is confined to qualified gardeners only, and that new members may join at any time, provided their credentials are up to the required standard. Forms can be obtained from the secretary B.G.A., Talbot Villa, Isleworth, W.—J. W.

Strike in the Chilean Nitrate Trade

The numerous "hands" engaged in the nitrate trade in Chili are on strike just now, and an unfortunate collision between the military and the strikers has led to considerable loss of life. It is fully believed, however, that the Government will take every possible means of getting over the trouble, as a large part of the national revenue is derived from the export duty on nitrate, and if the strike were to be allowed to continue for any considerable time the effect on the national finances of Chili would be serious. The main cause of the strike was the heavy depreciation in the currency, whose value has dropped from 14d. to a little over 9d. per dollar. The workers are demanding that their wages shall be placed on the full sterling basis of 18d. per dollar. Consumers of nitrate will watch the labour struggle with great interest, as the outcome will doubtless prove of great importance to them.

December Weather at Belvoir Castle.

The prevailing direction of the wind was S.W.; total eleven days. The total rainfall was 2.61in; this fell on twenty days, and is 0.27in above the average for the month; the greatest daily fall was 0.47in on the 4th. Barometer (corrected and reduced): highest reading 30.376in on the 24th at 9 a.m.; lowest reading 28.666in on the 13th at 9 p.m.; mean of 9 a.m. and 9 p.m. readings 29.742in. Thermometers: highest in the shade 55deg on the 8th; lowest on the screen 26deg on the 1st; mean of daily maxima 43.70deg; mean of daily minima 34.38deg; mean temperature of the month 39.04deg, which is 0.29deg above the average; lowest on the grass 23deg on the 1st and 24th; highest in sun 83deg on the 1st; mean temperature of the earth at 3ft 43.58deg, which is 1.09deg above the average. Total sunshine thirty-seven hours thirty-five minutes, which is nine hours fifty-six minutes below the average; there were fourteen sunless days.—W. H. DIVERS.

The Royal Gardens, Windsor.

Since the accession of His Majesty the King to the throne many and very extensive alterations have been carried out in the Royal gardens at Windsor, especially in the utilitarian department of fruit, plants, and vegetables at Frogmore. Under the able re-organisation and management of Mr. A. McKellar, one might say acres of glass houses have been built during the last three years, and needless to say, all on the latest principle and improvement with a view to ensuring the greatest success, as it can easily be suggested that immense quantities of everything a garden can provide is required at such times as those just passed, when so many crowned heads were visiting Windsor. A somewhat similar experience, if on a smaller scale, had Mr. McKellar at Sandringham. No doubt the experience gained there has stood him in good stead in the extended operations at Windsor.

In the following notes I do not presume them to be a full description of the garden, or even all the alterations that have recently taken place there, but just an elaboration of a few mental notes made during the early part of November, when I had the pleasure of an all-too-hurried visit to Mr. McKellar, who is the most courteous of guides and ever ready to give information for the welfare of horticulture.

As my visit took place a few days before the assembling of the Court for the reception of the Kaiser, it can easily be imagined what preparations were going on for so important a function. By the masses of foliage and flowering plants being arranged, first in the garden for each site in the castle, afterwards being labelled, gives one an idea of the methods adopted, and the quantity of material required.

GREENHOUSE PLANTS.

As may be imagined, everything that is good is grown in huge masses; a little of anything is of little value here. In one house were arranged the finest batch of Begonia Gloire de Lorraine that I have seen, not only in numbers—2,000—but in quality. From pots 2½ in diameter, to those 7 in across, marvellous plants were obtained, ranging in size from a few inches to a yard high, and almost as much through, and so smothered with richly coloured blossoms and furnished with dense green leaves that one could not do other than stare in amazement. I have seen batches of this Begonia at Sandringham that were extremely fine, but none to approach these. Arranged as they were on each side of a span roofed house, the under side of the roof too hung with baskets, all equally well grown, was a sight to never forget. By an ingenious arrangement of mirrors at the end of the house the view on entering was distinctly lengthened and emphasised. The variety Turnford Hall is here appreciated, and certainly succeeds admirably.

Carnations, as may be expected, are much in demand. The American type is favoured, as they possess all the points of advantage. The plants, a large batch of all the best varieties, were in robust health, carrying quantities of deeply coloured flowers on particularly stiff stems and furnished with luxuriant "grass." Mr. McKellar makes a point of testing the new sorts as they appear, and thus is up to date in desirable kinds. Malmaisons, too, are much appreciated; a fine batch of Duchesse of Westminster was coming along, not a sign of rust or speck on the leaves, the plants in rude health. Lilium Harrisii and Lily of the Valley are required extensively. Zonal Pelargoniums—a huge batch—were giving a full promise of brilliancy later on.

Crotons are appreciated for their light appearance and rich colouring; one does not wonder at this, seeing the plants so well furnished with foliage, mainly on single stems, and of suitable size. One large span roof house is devoted to them, and right well they thrive. Palms, it is needless to say, are grown in extremely large numbers, and so are Gardenias, in 6 in pots, healthy vigorous plants that will give abundance of fully developed blossoms judging by the healthy foliage. Eucharis fill one large and suitable house. The much-dreaded mite (to some gardeners) is here unknown, neither should we think of such an insect when admiring the luxuriant foliage which the bulbs are furnished with.

ORCHIDS.

Orchids, as may be expected, fill many houses, and are a grand-looking set of plants. Cattleyas, of course, come in for much attention, so appreciated; Odontoglossums, &c., are here in masses. A fine batch of Calanthes just coming into flower gave promise of future development in extra long racemes of bloom in particularly small pots, which are no doubt found so useful for decoration. Violets are especial favourites; row after row of suitable brick pits are filled with plants, so robust and promising that little was left to be desired. The richness in colour of the blooms of Marie Louise and the single Princess of Wales struck me as having soil quite suitable for Violet culture. I noted a capital plan of treating the last named variety. The plants are raised annually from cuttings, each plant is restricted to one stem or growth, all runners being kept off,

which concentrates the energy of the plant into the production of high class blooms with desirable flower stems, a point about this Violet so remarkable.

In the fruit department things are even done on a larger scale. Grapes are a feature so well do they succeed. Appley Towers is here a favourite, and so is Lady Downe's, both hanging in quantity. Muscats, mainly of the Alexandrian variety, are extensively grown, and from the appearance of the Vines have produced extremely fine fruit. One thing I was much impressed with in connection with the Vines was the method of short pruning of the young rods annually. Mr. McKellar does not believe in the plan of allowing the Vines to furnish the house too quickly, but by allowing to the leader a short extension he obtains extra strength in the base of the rods, and will eventually furnish the vineries with a mass of vigorous evenly sized rods which will last many years in the best condition, and what is more, the good bunches will be evenly distributed over the rods, and not, as in too many instances, a few large bunches at the top of each Vine. Peaches are now becoming thoroughly established in their permanent quarters; at first the trees were planted rather thickly to utilise space, now they are being rearranged, and from the growth made the result in the future is most encouraging. Figs occupy much space, so popular is the fruit. The whole of one long corridor was planted with trees but a very short time since; an excellent start has been made in the growth of the trees, a happy augury for the future. At present the roof space is most prettily festooned with strings of fruit fully 8 ft long of Tomato Sutton's Cascade. In several other houses I noted batches of a capital winter-fruited Tomato of Mr. McKellar's selection, being short jointed in growth and bearing profusely most shapely fruit.

HARDY FRUIT.

The hardy fruit department at Windsor is perhaps the most extensive feature in the garden, and it is in contemplation to plant several thousand cordon trained Apple trees to furnish both sides of an extensive path. This form of training is a favourite method with Mr. McKellar, as he planted many similar trees at Sandringham, and which proved a great success. Pears were a fine crop last season at Windsor, both on cordon and pyramids. Never have I seen trees in the latter form of training looking so well. The fruit produced is large, clear in the skin, and doubtless of good flavour. Summer pruning is not much practised here, neither is it so necessary as in many gardens. The branches are kept thin on the trees, therefore a full share of light and air is at all times obtained. Cordon Pears on walls are a great success, especially Doyenné du Comice, which is planted on four various sites to provide a longer season of fruit. Where space admits this method cannot fail of having this, the best of all Pears, in use over a long period. Among Apples Cox's Orange Pippin is well provided for in trees of various forms. As standard trained they succeed admirably, the branches are clean and vigorous without being unduly so. Peaches on walls are simply amazing in the matter of growth. I would that "D. C." could see these trees so recently planted, who, I think, would agree that Peach culture in the open is still possible. On a south wall many trees were planted two years since; many of them have a branch spread of 17 ft, and but two years' growth! The wood is not unduly large either. Abundant space is given to each tree; they are planted 19 ft apart. Many dozens of handsome fruit were taken from these trees during the last season. Thin training of the branches is not forgotten, and maturity of the wood is regarded as an essential to success; and so is the prevention of insect pests attacking the trees, and not the getting rid of such enemies.

Plums, especially the Gage section, are largely grown on a variety of sites. Fan trained trees upon walls are the picture of health and in huge numbers. Cherries in bush form provide an educational lesson of great value, in the manner of training and in the cleanly vigorous condition. Apricot trees are numerous upon the walls. There are no indications of trouble from gumming of the branches; the leaves, too, indicate perfect health and full crops.

Needless to say, the kitchen garden crops are managed on a similar scale. For instance, the Cabbage plot for next season's use contains 25,000 plants, all sturdy and promising. Ellam's Dwarf and Flower of Spring are two favourite sorts. Space forbids my saying more about this department, although much might be said, and of interest too. I noted the luxuriance of Asparagus growth. From but two-year-old crowns grand growths had sprung. Plenty of space for development of the "grass" is here observed.

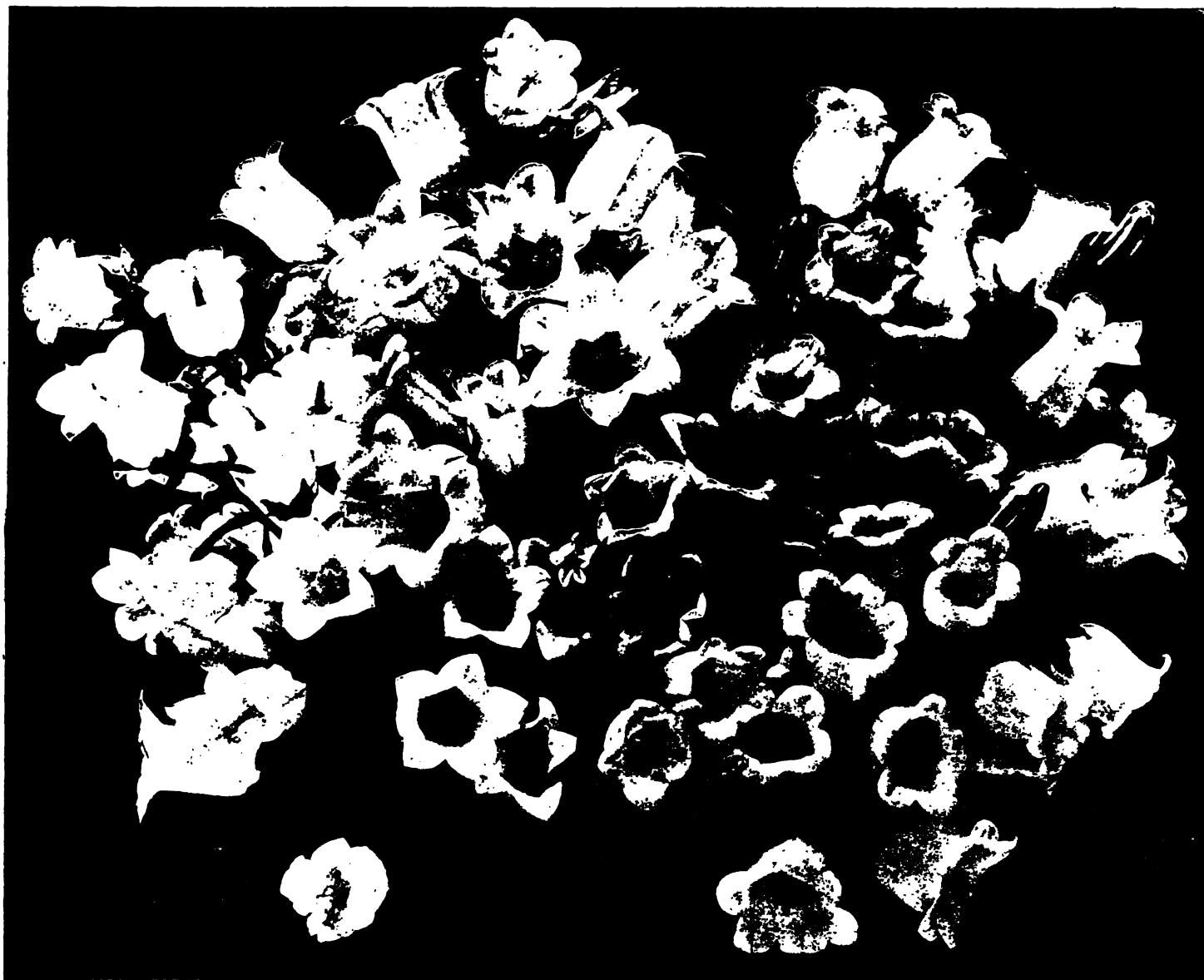
OTHER FEATURES.

On the kitchen garden terrace much has been done for the growth of Roses, bed after bed on each side of the wide path running east and west have been planted with one variety in each bed. Such sterling varieties as Caroline Testout, G. Nabonnand, Liberty, and Richmond are appreciated in quantity, beside many pillar sorts. Abbé Miolan and Hermosa

are great favourites, as many as 25,000 of these have been put out at one time. In the park, from the gardens to the castle, which was formerly occupied with cattle, many alterations have been made. A Lime tree avenue one and a quarter miles long was recently made, which in time will be an interesting feature. The making of a golf course commencing at the foot of the terrace wall has necessitated the keeping of the grass quite short, so that now 200 more acres has been added, which now requires the aid of eight horse-mowing machines to keep the grass in its present charming condition. Much has of late been done on the castle slope facing the Windsor end, known as Sir

Canterbury Bells.

The beautiful and familiar old name is too good to be placed second to any scientific one. The Canterbury Bells are, however, varieties of *Campanula Medium*, almost too well known to require description. This biennial plant has a remarkably branching habit, every oblique lateral growth ultimately developing a terminal posy of flowers. By the kindness of Messrs.



Canterbury Bells.

Copyright, Webb & Sons.

Dighton Probyn's garden, in the way of forming rockeries for choice plants, bog gardens, and winding paths, rendering this a particularly interesting portion, of which Sir Dighton is a keen lover, possessing, as he does, an intimate knowledge of horticulture generally.

As showing the stupendous character of the alterations so quickly wrought here, His Majesty the King recently desired the gravel in the Quadrangle replaced with grass with the exception of a carriage drive around. Mr. McKellar set to work at once to carry out this command, and removed no fewer than 1,400 loads of stones and gravel, which means that the same quantity of soil had to be returned, and this was so expeditiously performed that at the time of my visit the grass had the appearance of being down for some considerable period. So accustomed is Mr. McKellar to "big" things that he quite revels in what would be to many impossible undertakings.—E. MOLYNEUX.

Webb and Sons we are able to show a well-selected white variety; but this one does not quite depict the real cups-and-saucers type. The true "cups-and-saucers" (*C. M. calycanthema*) appear to us to be decidedly uncommon. Kew had an almost perfect bed of the varieties of this form, in shades of pink, blue, and, of course, white, but that was a year or two ago, since when we have missed them. Of course, Kew has to bring forward so many good things in turn, that one cannot reasonably hope to see one's favourites always in the forefront. Seeds are sown out of doors in a well prepared border in April, or in shallow boxes in a greenhouse or similar cool house. Transplant the seedlings to a fairly rich, partly shaded border, and keep them supplied with water during summer. In September transplant them to their flowering quarters—either in beds, borders, or grouped in shrubberies. They are equally well suited for pot cultivation, and make handsome specimens. The natural season of flowering is June and July.

Market Gardening Notes.

BRAMLEY'S SEEDLING APPLE.

Apart from the variety, the system of grading and packing as done by the growers from Lingfield, Surrey, is to be commended. Selling in Covent Garden by Mr. T. J. Poupart, in cases of two layers, about 30lb, at 6s., is at once evidence of the system being right. We want more of this; then there would be less grumbling all round. The seconds are graded, put up in three layers, and sell well. So much for up-to-date growing, then grading and packing.

PELARGONIUM, PAUL CRAMPÉL.

For decorative purposes this is good. Fine in colour and truss, with foliage "all its own," this introduction of Cannell's stands A1.

WINTERING POT ROSES OUT OF DOORS.

I put the query to a very large market grower why his stock of the above, grown for the cut flowers, should now be lying on their sides, but could get no answer. I like the idea, if it is a matter of drainage. Let me not forget, however, there is the question of frost to the roots through the pots. I am thinking over the why and wherefore, and will again return to the subject.

MARKETING JERUSALEM ARTICHOKES.

It is interesting to note that grading here also pays. In my usual market rounds, I heard 1s. 3d. asked per half bushel; 1s offered, but refused. The would-be buyer says, "I can buy off Mr. So-and-So at my price." "Yes," responds the grower, "it is true; but mark this, mine are carted home from field to shed, and are graded and cleaned as required for market. On the other hand, your cheap man not only lifts, but packs on the field as lifted." Here is a good object lesson, and one which can be well utilised for our everyday trade. Not the least point of interest is also the fact of finding work, when such roots are under cover, for the wet hours.

CUCUMBERS AND TOMATOES.

The supply of the former is not large, but quite equal to the demand. Prices are not high, not many above 6s. or 7s. per dozen. To grow these straight, the crop must be light, but so far the firing has been easy. Tomatoes are a poor trade. We lose every year from the autumn by the growers having such a bulk pulled off before the ripe stuff, that even when a few baskets of good ones come in, it is difficult to make the buyers believe they are good and fresh. The Canary supply is on a very different line, well graded, of good colour, and sound.

CUCUMBERS FOR THE MAIN CROP.

I know those who, like myself, always sowed on the eve of Christmas, some on Boxing-day. It is a very suitable time; but let the soil be warm before committing the seeds to it. It is a vexed question whether to water before or after sowing. Sown in small hand frames or lights in a warm house, a week should see the seed through. Sow thin, then there will be less check at the potting up. Clean surroundings, even for the young seed plants, is good.

LOBELIA, EMPEROR WILLIAM.

Fogs we have had in plenty, yet strange to say the above is doing grandly in the near vicinity of London. A contrast to

off fast enough." No doubt when the early spring is here, this will be a cheap line, but still more profitable to the grower than last season, when it damped off so much.—STEPHEN CASTLE.

Ferns.

Dicksonias Outdoors.

Of late years attempts to naturalise some of our noble tree ferns, notably *Dicksonia antarctica*, are frequently seen, and doubtless there are many of the more climatically favoured spots in our isles where such has been attended with more or less success. This, of course, apart from their temporary employment in sub-tropical work. It is feared, nevertheless, that some examples, at least, merely await but a little abnormal severity to either kill or cripple them sufficiently as to result in disappointment, for too often the position accorded to them is one in which the fern's requirements have been largely sacrificed to effect; and, even though the site selected is one affording considerable shelter, it may fall short of those conditions under which the plant might go beyond toleration and be perfectly happy. Atmospheric moisture, as well as shelter, such as the plants obtain in the gorges and gullies of their Antipodean home, is essential to their well-being, and in noting how that in some places where such either obtains, or might be had with a little development of existing geographical features, but is overlooked, it seems a mistake to introduce fine specimens to comparatively arid positions where if a feature is created it exists only on sufferance.

Given a natural ravine or sheltered dell, with moisture-retaining rocks and, possibly, a pool or streamlet, where in the height of summer or depth of winter our beautiful natural mosses retain their emerald verdure, it should not be difficult to accommodate *Dicksonia antarctica* as a permanent object. Far inland, probably, greater extremes of temperature than are experienced near the sea would seriously discount hopes of success, and some tempting natural gorges in the rock have been seen in such places where it was felt the risks of naturalising would be too great to warrant the attempt. In one instance a comparatively narrow cleft in the rock, from 30ft to 40ft wide and possibly as much in depth, which forms a feature in one particular dunes, is strikingly suggestive of the ease with which a portion, at least, might be roofed in with iron and glass, and thus give the little protection that is needed in the particular position. In this case the roof would merely form an arcade for a given distance but little noticeable to the visitor who, entering the glen in its natural state, would eventually find himself walking through a grove of tree ferns over which the artificial protection would be little in evidence, especially if covered with hardy creepers, such as *Solanum jasminoides* and the *Passiflora coruella* and *Constance Elliott*.

Granted that the natural features of a glen suggesting such with comparatively little trouble and at small cost (as far as horticultural building is concerned) are rarely met with, there are not wanting disused quarries, nooks, or corners, where by a little ingenuity permanent shelter could be given to the subjects under notice, and a pleasing, novel, yet natural feature created at comparatively little expense.—E. KNOWLDIN, Dublin.

Garden Ornaments.

Urns.

It is manifest week by week that while so much is said and written in the papers about planting and cultivating, hardly one of them pays any attention to the art and work of design and laying out. Our young gardeners are trained to be good plantmen, but their minds receive little or no stimulus on the broader matters of their profession, namely, in the principles of garden making. In the present note we invite attention to the dignity and use of pedestaled urns in garden scenery. The little photograph accompanying these observations conveys an idea of what is actually under notice. The urn or tazza or vase or similar "garden ornament" is chosen for such a position, i.e., the entrance to a pathway or at the points of diverging paths, in order to afford balance to the scene. Their presence furnishes a definite portal, as it were, and marks the limit of the framework of part of our plan. Sometimes they take the place of a clipped Yew or Holly, or a clump of shrubs; at other times they are supplemented by trees and shrubs. "Urns in stone, terra-cotta, and metal have always been deemed an ornament," says Mawson, and he alludes to the beautiful leaden ones at Hampton Court. Some of the urns there, however, are artificial, cleverly done in composition. "Urns are also employed as filials to gate pillars, and to mark the corners of terraces, and are very effective. Some firms supply replicas of choice old models." In themselves they ought to be objects of beauty and interest.—A. N.



Pedestaled-Urns at Entrance to Pathway

this date last year! One good market grower to-day took eleven boxes of cuttings from one store box. In reply to my remark, he said, "Yes, they are doing well; can hardly take the cuttings

Elveden Bothy.

In the *Journal* for September 19 last, by permission of Messrs. Mackenzie and Moncur, Ltd., the builders, we were enabled to reproduce a photograph of the under gardeners' bothy at Elveden, Suffolk, a residence of Lord Iveagh. The bothy consists of mess room, sitting room, kitchen, scullery, caretaker's room, seven bedrooms, and two foremen's bedrooms, with ample lavatory accommodation, bath room with hot and cold water service. The building is of a tasteful design, and is a good example of an up-to-date garden bothy. Mr. E. E. Carr, the present head gardener writes:—"Having recently seen a photograph of the bothy at Elveden Gardens of some years ago, in the *Journal of Horticulture*, I beg to enclose a view of it as it now is, taken from the south-west side, and also a south-east view of the gardener's house, not taking the front entrance in. You will notice on the left a small portion of the stables, and also a portion can be seen on the right over the building attached to the gardener's house."



The Bothy, Elveden, Suffolk.

Water Supply for Villages.*

The scarcity of water from which many villages have suffered during the past few years can hardly have been unanticipated by careful observers of the meteorological conditions which prevailed in the affected districts during the periods preceding the scarcity. The summer of 1906 was particularly fine and dry, and the rainfall for the whole year below the average; but the significant fact as regards the water-beds was that the winter of 1905-06 crowned a succession of winters of remarkable dryness. Whilst scarcity is usually most pronounced toward the end of a dry summer, and is, indeed, popularly ascribed to summer dryness, the real cause is to be sought in scanty rainfalls during the preceding winter, for the winter rains, little needed as they are for the nutrition of vegetation at the time of their appearance, and fairly secure from evaporation by the sun's rays, are largely absorbed by the earth and thus constitute the means of replenishment of the vast underground water-beds upon which well users depend for their supplies during the drier months which follow. The summer rains, on the contrary, are either taken up by growing crops or evaporated from the surface by the heat of the sun almost as soon as they fall.

Computations by careful observers go to show that the degree of infiltration of the rainfall during the period from December to March inclusive is as high as eighty-five per cent., whilst that for the months of June, July, and August is less than two per cent. So great, in fact, are the needs of some forms of vegetable life during the warmer months of the year that an Oak tree having about three-quarters of a million of leaves will (according to Pettenkofer) take up out of the earth and evaporate through its leaves about eight and a half times the amount of rain falling during a whole year upon the ground which it covers. It will thus be seen that, even though the summer rains may suffice for superficial seasonal needs, they are ordinarily insufficient to restore to the subsoil the large volumes of water annually drained upwards by the roots and fibrous "suckers" of trees both large and small.

It may be of interest to note, in passing, that as a consequence of the water-greed of trees, shallow wells situated in the vicinity of woods are usually the first to "give out" during a period of scarcity. Happily for the persons chiefly concerned, such periods are rarely of long duration in this country, but the inconvenience and insanitation resulting from them are not the less regrettable, in view of the fact that with a little more initiative and enterprise most village communities could not only insure against such ills, but could positively add considerably to the amenities of village life.

Although much has been done under the provisions of the Public Health Acts by rural district councils to provide the communities within their jurisdiction with good water services, much still remains to be done in this direction. Most villages in England and Wales are still dependent for their inconstant and sometimes polluted supplies upon their series of shallow wells, which, perhaps, represented the *summum bonum* of a century ago, but for which the only excuse to-day is the cost in money of a better system. As this matter of cost may, owing to lack of data, operate as a deterrent to the due consideration of individual water schemes, a few estimates, based upon actual experience, may be of service to those interested.

It should, however, be premised that these estimates would only apply to average conditions, which may be taken to comprise a moderately compact village of 500 inhabitants (100 houses) situate in an ordinary agricultural district where (owing to a liability to surface pollution) the impounding of a stream is inapplicable and where, therefore, water must be pumped from a deep well into a service reservoir. The sites

of the well and reservoir and the means of service would, of course, in all cases need to be decided by an expert engineer after due consideration of the geological and other conditions of the area to be served, but it may be stated that the choice of a means of pumping is limited to (a) the windmill, (b) the oil engine, (c) the ordinary gas engine, and (d) the suction gas engine.

Taking the cost of a tube well at £80, then, for a windmill installation the cost of well, mill, pumps, reservoir, mains, sluice valves, and hydrants, with installation charges, will be about £940, and the annual charge, including interest and sinking fund at seven per cent., together with repairs and wages, about £95, which gives per head of population a capital cost of £1 17s. 5d. and an annual charge of about 3s. 9½d. For an oil engine installation the capital cost would be about the same as for the mill installation, but the annual charge would probably be about £30 higher owing to cost of fuel and insurance, and these figures would give charges of £1 17s. 5d. and 5s. per head respectively. The capital cost of a gas engine installation should be about equal to the foregoing, but the annual charge would, of course, largely depend upon the price of gas in the district; assuming, however, that 3s. 6d. per 1,000 feet would represent the average, £125 per annum is probably a fair estimate, and in this case the capital and annual charges are again £1 17s. 5d. and 5s. per head respectively. Suction gas plant, the latest innovation for pumping, is doubtless more costly at the outset than the other means referred to, but the economy in fuel over either the oil or ordinary gas engine goes far to balance this initial disadvantage. With such an installation the capital cost would probably reach £1,100 and the annual cost be reduced to £80, thus giving rates per head of £2 4s. and 3s. 2½d. respectively. No provision has been made in the foregoing estimates for costs of supervision other than those which would fall naturally under the heads of construction and periodical repairs, it being assumed that an unpaid committee of the council concerned would discharge such duties.

Late Malmaison Carnations.

In view of the recent notes on late-flowering Malmaison Carnations, the following notes from Porter's Park, Shenley, Herts, per Mr. Stephen Castle, will be interesting. Mr. Grubb, the gardener, obtained a gold medal award for perpetual and Malmaison Carnations in pots at the recent exhibition in Regent's Park:—

The variety in question is the well-known Princess of Wales. What a colour in the blooms, betokening a high standard of cultivation, and no doubt the loam is impregnated with iron. Practically my visit was in connection with "The American Florist," but since coming home I have received a note asking me to say a few words in the *Journal* for Mr. Grubb. I will

* "Journal of the Board of Agriculture," December, 1907.



ANTIRRHIN M. CARMINE PINK.

(Copyright Sutton & Sons.

therefore endeavour to briefly describe this "out of season" fine show of Malmaisons.

First of all there is the stock of 48's, about 1,000 in heated frames; but the morning being fine on my call the lights were well thrown back. They were evidently grown hard from the younger days, and they readily respond to a more liberal treatment later on. The flowering plants were very fine in 24's—a batch really for the home Christmas decoration. These afford an average of two blooms per pot, with the follow-on of other large swelling buds.

Another later batch, from which 450 blooms have been cut since September, are now throwing up well, and are also breaking grass freely. A still later batch was being reserved for the Temple Show. Clean grass, strong and blue, there was no doubt of the blooms being a success.

The points of culture so far as I could learn were light and heat as required, combined with thorough cleanliness. The soil no doubt was a good one; a sandy loam nice to feel at. Watering was being done as I was there, and here no doubt is one leading item, only to water as actually required, no slopping about, and done, if possible, while the weather was fairly clear. Malmaison growers, as I know, prepare the compost some weeks before using, and with this a good dusting of some prepared chemical manure is used with the compost while mixing. Avoid a too free use of dried farmyard manure, the aim being rather to secure a hard growth in a lasting soil. The point of soil or compost mixture escaped me when with Mr. Grubb, but if I err in any of my lines, I hope he will take it up and put the matter right. Let me add that one 24-pot had seven blooms and buds on, but the flowers were not so large.—STEPHEN CASTLE.

Florists' Antirrhinums.

Occasionally a special note about Antirrhinums appears in the gardening papers; but the great majority of people are yet quite unconscious of the great worth and beauty of the florists' Antirrhinums. Few gardeners deem it necessary to grow named varieties, even if they know that these exist. What more beautiful than some of those that Dobbies, Cannells, or Suttons offer? So convinced are we, however, that the humble Snapdragon is a flower that will come to the front, that we earnestly ask for the consideration of its merits by all who grow border plants. It is well nigh as fine a subject as the Sweet Pea, though not so useful for cutting from. Its long racemes of flowers, in very many lovely colours; its perfect hardiness; its bushy, upright habit of growth, and its general accessibility, mark it out as a plant for everybody.

It is almost useless attempting the growing of profitable flower spikes of Antirrhinums from old plants lifted from outdoors and that have flowered to any extent through the summer. In America Antirrhinums are grown in benches, as well as those grown in pots, and respond freely to high cultivation in the matter of soil and feeding. The aim should be to do everything possible to make the plants throw up long spikes, otherwise, even in the middle of winter, the flowers produced will hardly pay for the labour expended on them. Frequent stirring of the surface soil is appreciatively enjoyed by Antirrhinums indoors as well as outdoors.

By the kindness of Messrs. Sutton and Sons, who seem to have duly appreciated the importance of these flowers, we are enabled to figure their Carmine Pink. This is a richly self-coloured intermediate variety. Many other good named kinds exist.



Luculia gratissima.

In a semi-span conservatory with a high glass front at Sherborne House, several plants of this lovely subject were planted over forty years ago, and thanks to good treatment they fill the front of the house, producing annually abundance of large sprays of bloom, foliage of stiff leathery texture, and a girth at the base of 20in. How seldom we see this desirable plant! True it is not easy to cultivate, but this fact should stimulate the British gardener (given facilities) to determined endeavours. Mr. Mitchell should send some flowering branches to the R.H.S. meeting, where probably it would be welcome.—B.

Polygonum Baldschuanicum.

What a delightful climber this is!—so well adapted for arches, pergolas, walls, or rooteries. For preference I would grow it on a pergola or wherever it can be given free space to ramble overhead. Its flowers show to much better advantage under such conditions. Recently I saw a magnificent plant covering a wall space of 30ft by 16ft, and affording great enjoyment to the fortunate owner and others. Frequently one hears the remark that this variety only does well in the South, or on a warmer coast, but this locality is neither, and yet the plant could not be more robust than here—Sherborne House, North-leach, Glos., where Mr. Mitchell ably presides.—L.

Pansies.

We must not neglect our Pansies in frames. Every grower of bedding stock knows the value of Pansies, and this knowledge prompts him to leave nothing undone to keep them from suffering. Frequently the frames are covered up altogether too heavily. That is why the plants want seeing to, to be protected against protection, as it were, the kind that is not only needless, but harmful. Pansies are by no means so frail and tender as some people seem to think. They will do far better without a too heavy covering during winter, and should never be entirely deprived of air and moisture. If allowed to go into the winter with their roots dry, as is the case after a rainless autumn, unless often watered by the grower, closed sashes and top covering will only add to their plight, hindering Nature in coming to their rescue by finally supplying the needed want in the form of rain or snow. Thousands of Pansies are thus lost every winter, and untold numbers again in the spring by reason of too much coddling.

Bonemeal.

This is undoubtedly a fertiliser in which both the nitrogen and the phosphoric acid are sold at a very low price per unit. It has always been admitted that the nitrogen in bonemeal is in an available form. But as to the value of the phosphoric acid contained in this fertiliser there is some difference of opinion. Experiments conducted by some of the leading German agricultural chemists place the value at a little above that of mineral phosphates, which are, when in the undissolved condition, practically valueless as fertilisers, while the experiments conducted in Japan give it a very much higher value. Observations made in India also differ materially. A sample of coarse bonemeal applied on the surface under a covering of leaves disappeared in less than a year, while another sample of coarse bonemeal buried deeply was dug up after twenty-eight years. Evidently neither the phosphoric acid nor the nitrogen is readily available when the bone is buried deep in the soil, and the whole question needs further investigation. This investigation is all the more desirable, as the ingredients of plant food contained in bone can be bought comparatively cheaply in that form, and as owing to the high percentage of iron and the very low percentage of lime in certain soils, superphosphates may not give relatively as good results as have been obtained elsewhere.

Cimicifugas.

For effective grouping in the herbaceous border, few plants are more commendable than the *Cimicifugas*. They have ternate foliage, long, graceful and arching, and tall, feathery white elongated wand-like racemes from 3½ft to 4½ft high. For cutting, they are very decorative, their wiry stems being well adapted for this purpose. Like many North American plants they thrive best when planted in a compost comprising peat, leaf mould, a little loam, and a good proportion of coarse sand, and in a partially shaded situation. The best variety is undoubtedly *C. simplex*, the large snowy-white inflorescence being very showy. Other good ones are *C. americana*, *C. cordifolia*, *C. dahurica*, and *C. racemosa*, the black Snake-root, which has a curious way of twisting its stems. These *Ranunculaceae* plants are easily propagated by division or by seeds.—W. L.

The Early Moth.

By the end of this month or early in February the Early Moth (*Geometra primaria* or *Cheimatobia rupicaparia*), is found about our hedges. The male, represented in the accompanying cut, generally measures rather less than 1½in in the expanse of the fore wings, which are greyish brown, with a broad dark bar across the middle, the edges of which are darkest



The Early Moth.

and somewhat notched, narrowed behind, and bearing a dark dot in the middle. The hind wings are whitish with the ordinary central dark dot placed before a nearly imperceptible narrow line which crosses each, the edges are marked with brown spots; the antennae (horns) in the males are bepectinated (have bristles on each side so as to be like a comb). The female has short, rudimental, whitish-ashy wings, having a dark bar towards the point farthest from her body, and a slender streak across the hind wings. The caterpillar is greenish with whitish lines and margins to the segments; it is to be found early in spring feeding on the wild Plum, but we have seen it also upon Damsons and Bullaces growing in a hedgerow. The moths appear in January and February, the males flying about hedgerows. It is rather a common insect.

Crassulas.

When *Crassulas* are used for bedding much in same way as *Echeverias* and, like the latter, taken out and put in boxes for the winter (*Crassulas* will not stand as low a temperature as *Echeverias*), the tops should be taken off and placed quite closely together in shallow boxes filled with sandy loam, or sand alone, where they will root in a few weeks. In spring these will be splendid plants for outdoor work. If it is necessary to increase still further the stock, the old plants from which the tops had been taken may be induced to grow and make new growths that will before long be fit to be taken off and rooted in the same way as those previously taken.

The Creosoting of Home Grown Timber.

Result of tests to ascertain absorption of creosote oil under high pressure, by twenty-seven kinds of timber (in the round) grown on the estate of the Right Hon. the Earl of Yarborough, Brocklesby Park, Lincolnshire. The timber was felled in December, 1906, cut into 8ft lengths and weighed with the bark on, on January 21, 1907. The bark was then taken off and the timber weighed and stored outside, protected from rain, until May 29, 1907, when it was weighed again and placed in the creosoting cylinder. After a vacuum of 9lb had been maintained for some time in the cylinder the oil was injected and kept under a pressure of 85lb per square inch (about six atmospheres) for three hours. The creosote oil (sp. gr. 1.040, costing 3½d. to 3¼d. a gallon delivered at the purchaser's yard), was warmed by steam during use. The last column of figures shows the absorption of creosote per cubic foot of the wood impregnated. As soon as the timber was taken out of the cylinder it was weighed, and one piece of each kind sawn longitudinally through the centre in order to ascertain to what extent the oil had penetrated.—("Journal of Forestry.")

"Garden Laborers."

It's a good many days sin I laid pen to paper, as the sayin' is, to introduce sic a problem as this hereunder to the enlightened considerashun o' Jernel readers; for the rumitis 'as been that bad on me that all other problems 'cept this 'as been clean drivin owt o' mind. But wonsie agin I crave your attention a few minits, 'cos I 'ave a word or two to say on beharf of that seckshun of the gardenin' fraternity to which I have the honor to belong. I refer to the garden laborers, the fellers as earns eighteen bob a week when they are well paid, wear corduroys and white slops, does th' donkey work in gardens, carries their bit o' dinner in a basket o'er their backs, and eats it six days a week in a pottin' shed or some other place as you could 'ardly call a first class dinin' room. I 'ope my 'ead gardener friends won't think as I 'ave any charges to bring agen 'em about treatin' their laborers badly. Far from that, 'cos many o' 'em, includin' your 'umble servant, are as 'appy and as comfortable as can be hepected in this world o' trouble, but wot I kontend is that garden laborers ain't allus given the kredit as is due to 'em.

There's many a gardener to-day as knows in his 'art of 'arts how much he owes to some owd laborin' chap who has looked after th' kitchin garden, pleshure ground, or some other department o' th' place for more years than I can name. He goes on, does your garden laborer (if he's one o' th' right soart, and he wouldn't stop a lifetime in one place if he wasn't) day arter day, doin' his graft loike a macheen, gettin' his bit o' grub in th' pottin' shed and his pipe o' bacca arter it, never expectin' any praise, nor gettin' much, and 'avin' little in th' way o' luxuries, xceptin' p'raps a pint o' ale of a Saturday night. The garden laborer fills a certain place in th' world, but it ain't a werry himportant one compaired to some, and the only time as anybody makes a fuss on 'im is when there is an elekcion comin' off, and both perlitikal parties is arter his vote. Yet this very man has a good deal to do wi' th' workin' o' th' garden in which he is employed, and it must be said o' 'im as he gener'llly takes a pride in seein' things about as they should be, though as I said afore, it ain't allus much o' th' kredit as comes his way.

I've lived a fairly long time my friends and 'ave kept my eyes open, and 'ave seen more than one young chap come fresh from a hothouse and take over th' responsibilities of a 'ead gardener's persition, knowin' as much about kitchin gardenin' and outside work generally as he could possibly learn by lookin' through th' glass o' th' stove or orkid 'ouse in which 'e was brought up. You can argue as much as you like about th' advantages o' scientifik trainin' and all th' rest of it, but to a chap like the above (and there's plenty o' 'em about) it's a perfect Godsend to 'ave a staff o' good laborers on th' place, who has learnt th' rooteen o' th' work off by 'art and could carry it out whether anybody was over 'em or not. I know as 'orticultcher is a werry high art, and there's a good deal about it as a chap like me can never 'ope to learn, but all th' scientifik knowledge in th' world ain't o' any good when th' cook is krying out for turnips, and there's none in th' garden. A gardener not only wants knowledge, but fingers as can 'old as many reins as th' chap in Sanger's sirkus wot drives forty 'osses at once, and in keepin' everything together he gets a good deal o' 'elp from his laborers.

When a gardener fust takes a place he has got a good deal to learn (spechully if he's young and a hothouse reared 'un), 'cos there are no two places that are quite the same. He may be a first class man in every respekt, but he has got to get to know th' runnin' of his macheen so to speak, and if there's a chap or two on th' place wi' twenty years' ekspeerience or more th' new 'ead gardener won't go wrong in listenin' to the hints as these owd hands may drop from time to time. He will soon get inter th' workin' o' things, and 'ave no need to listen to anybody, but it ain't wise to set down any owd feller as bein' a fool until you've proved as he is one. It's more than likely as th' chap wi' a battered hat and a ragged westcoat can give a tip or two as is worth listenin' to, and I know o' more than one 'ead gardener as would ha' stopped longer in their places if they hadn't ha' bin quite so hindependent o' their laborers.

To take another haspekt o' th' kase, I wonder if every 'ead gardener realises wot treasures he has got in th' laborers under 'im as does th' spade and barrer work o' th' place. You may be chock full o' knowledge yourself, but it's a fine thing to 'ave a man in th' kitchin garden for instance, as you can depend on to keep th' cook supplied wi' vegetables, a man as can prune fruit trees wi'out needin' a book o' direcktions at his helbow, or one as can be trusted to keep th' walks and lawns tidy wi'out th' 'ead gardener 'avin' to be kontinuallly peepin' into all th' nooks and corners. I say this is a fine thing, 'ccs it releevs th' 'ead gardener of a lot o' anxiety, and if there's any o' my readers wot as got a staff o' laborers as ain't worth their salt, and can't be trusted, they'll understand th' truth o' wot I say.

Wot part do laborers play in th' produkshon o' th' produce as wins prizes on th' show tables from time to time? It's true their names never appear in connexshun wi' 'em, but take

vegetables as a case in point. There is Mr. Bigonion for instance, who shows splendid vegetables at th' shows, and wins prizes and cups and medals and all soarts of things. Sometimes he talks about the way he does it, and when asked to give a paper at a gardeners' meetin' he tells his audience that the way to grow three-pound Onions, and yard long Parsnips is to trench the ground three feet deep. Now three foot trenchin' ain't baby's work as I know, and Mr. Bigonion doesn't give you the impression o' bein' a chap as wears 'is life out wi' this soart o' thing. Dear me, no, but as Kiplin' 'ud say, that's a part of another story, and in th' garden where the big Onions and th' yard long Parsnips are grown there's ter to one a chap wi' 'eavy boots and a slouched hat who is tryin' to grow rich on three bob a day, as delves inter th' ground to that three foot depth and plays no little part in th' winnin' o' th' prizes, whether he gets any share o' th' plunder or not. Mind you, I'm not blamin' Mr. Bigonion for not doin' th' trenchin' himself, which 'ud justify 'im in takin' all th' kredit. I don't suppose I should do it if I wor in his place, and, of course, he direkts operations and bosses the show generally, but wot I kontend is this, that one wouldn't see so many splendid kerleckshons o' vegetables at shows if th' aektual exhibitors whose names appear on th' prize cards had to do th' donkey work, which arter all is th' chief factor in growin' monster Onions, perfect Parsnips, and th' rest.

Let me say a word now to th' 'ead gardeners who 'ave th' interest o' their perfession at heart. There's a tendency now to build bothies in every place as can boast 'arf a dozen men, and fill 'em wi' young chaps, which means dispensin' wi' laborers. Is this wise? I think not, 'cos it means as a great many more gardeners are bein' trained than there are places for, and some o' 'em 'ull have to be disappointed. Of course, it's necessary to 'ave bothies and train young gardeners, but wot I say is keep the supply a bit more in line with the demand. To get rid of a laborer and put on a young chap who wants to be a gardener means as you're doing away with a man as is quite kontented wi' his station in life, and addin' one more to krowd the ranks of a perfession as is already krowded enough, judgin' from th' advertisements in th' papers and th' differculity a gardener has in gettin' a place if he 'appens to get chucked out. If this little bit o' logic is of any value, I 'ope those as are in a persition to do so will foller the advise o' Captain Cuttle and make a note of it.

A word now in konklusion on beharf o' th' 'onored fraternity o' laborers. They ain't a agitatin' lot, nor 'ave they a union o' their own (as a matter o' fact they ain't legible to become members o' th' British Gardeners' Association), but there are a few privileges as they would appreeiate if they 'ad 'em. Some thoughtful employers o' late years 'ave granted their men 'arf a day 'oliday on a Saturday, and I wish this custom wor general. The amount o' work as is done in th' two 'ours between two and four on a Saturday afternoon (in some places they work till six) ain't o' much account to an employer, but th' time would be mighty useful to a laborer who has a big garden of 'is own to look arter, and a number o' odd jobs at home as 'ave to be attended to. Takin' 'em all the year round garden laborers don't get many 'olidays. I don't say as they wants many, but all work and no play makes Jack a dull boy, and one afternoon a week to call his own 'ud be a real privilege to laborers, and I'm sure th' gardens of their employers 'ud never suffer.

There, I must stop now, 'cos a female voice behind me remarks, "James, I quite agree wi' that last sergestion o' yours, 'cos if I 'ad you at 'ome at one o'clock on a Saturday I'd save a few little jobs for you which I 'ave to do now myself." In view of the above, p'raps Saturday 'arf 'oliday wouldn't lessen the burdens of your 'umble servant, but I advocate it all the same in th' interests o' my feller men.—OLD JIM.

Hardy Plant Notes.

Sisyrinchium striatum.

A rather striking, although not a showy plant, is *Sisyrinchium striatum*, a member of that extensive genus of the Irids known sometimes as the Satin Flower, through this term being applied to the favourite little flower which botanists recognise by the name of *Sisyrinchium grandiflorum*. It is, however, so different in almost every way that it is hardly recognisable by the many as a relative of the spring Satin Flower, but is, so far as its leaves are concerned, thought by them to be an Iris, although the form of the blooms, which is that of the *Sisyrinchiums*, should disabuse them of this impression. In habit, indeed, it is like the Iris, with its flat, rather broad, flag-like leaves. These leaves are about a foot long, and are described as half an inch broad by competent authorities, but many are at the broadest part quite an inch across. The stem, which sometimes rises to 2ft or 2½ft, has a small leaf or two arranged on it, and carries above these a spike of rather widely set clusters of stemless flowers of a pale yellow, and slightly veined at the base with brown. It is this slight veining which gives

the plant its specific name of *striatum*, but it seems barely appropriate, so faint is it at times as to be almost undiscernible in certain specimens. One has been asked occasionally if this *Sisyrinchium* is hardy, and one can only reply that it is so, but that it appears at times to rot away at the base in some very wet winters. On the other hand, it sows itself freely, and self-sown seedlings maintain the succession. It is now a good number of years since I first raised it from seeds, and since that time I have lost several plants from the cause mentioned, but their progeny always appeared and kept up the stock. It seeds freely, and, although not a striking or showy plant in its colouration, is an interesting one, which seems always to draw a visitor's notice. It hails from Chili and the Alps of Mendoza, and has been introduced to cultivation for a considerable time, and is reported to be widely spread in cultivation. This is not surprising, as its seeding properties are unmistakeable, and

Princes Street Gardens.

The world-famous Princes Street, Edinburgh, central avenue of that magnificently built northern city, is "only a one-sided street," as a southern visitor was heard to declare. So it is; only one-sided, so far as buildings are to be accounted; but its southern side opens upon those beautiful and extensive gardens that stretch from the base of the Castle rock, across the old Nor' Loch Valley, up to the verge of the thronging street itself. The parterre portion of the gardens, which is level and parallel with the street, is adorned with monuments and statues to Scotia's most eminent sons, the grandest of all being the Scott Monument. Flower beds also enshrine this parterre, a view of which is sent to us by Mr. David W. Thomson, nurseryman,



Summer Flowering Plants in Princes Street Gardens, Edinburgh.

Copy-right, David W. Thomson.

result in the appearance of a number of self-sown plants for some distance round the old one.

Stokesia cyanea.

Although great disappointment exists with regard to the fine blue-flowered *Stokesia cyanea* on account of its late flowering, which causes it to be caught by frost before its blooms can open, it is not generally known that it is possible to have the *Stokesia* in flower in good time by procuring the variety called *præcox*, which is in the hands of some of the trade. It is an excellent subject for exhibition among hardy flowers at autumn shows, and one need not have recourse to the methods of old exhibitors of such flowers who brought it into the greenhouse to hasten its flowering season. Both the forms make excellent subjects for pots, and the late one is even better than the earlier for this, as its good blue flowers come in along with *Chrysanthemums* and other things of a different colour. It likes a good soil.—S. ARNOTT.

George Street, Edinburgh. This illustration shows the beautiful effect in summer. "As soon as the Tulips have completed their season, the flower beds are immediately filled up with summer flowering plants. The plants generally consist of ordinary bedding-out plants. Pelargoniums are introduced in masses, which give a most effective display. Lilliums in variety, *Humea elegans*, standard Fuchsias, Eucalyptuses, and other such things are generally to be found here. East Princes Street Gardens being exposed to the east winds, the plants are frequently dashed about, but Mr. McHattie, the city gardener, has always ready a fresh relay of plants, and so keeps up such a display as is not surpassed in any other gardens in the kingdom. The Floral Clock still proves a great attraction during summer, keeps excellent time, and now chimes not only hourly, but at the half and quarter hours as well. The flower beds round the base of the Scott Monument are filled with collections of Cacti and other rare plants, and here dwarf Japanese shrubs are also used to advantage."



The Union of Gardeners' Societies.

In the article on page 12, one notices that the *Journal* is not acquainted with the fact that the Guildford Gardeners' Society have decided to join the federation of gardeners' societies, and thus obtain the benefits offered. Now that the R.H.S. have taken this matter in hand, no horticultural society should hesitate to join. The wonder to me is why secretaries did not grasp the idea immediately Mr. Boshier proposed it. This gentleman will yet be thanked for the trouble taken in publishing his thoughts on the subject through the generosity of the *Journal*. Horticultural associations who would be fully equipped and up-to-date, ought to be affiliated with the R.H.S. and federated for their own mutual benefit.—W. R., Guildford.

The British Gardeners' Association.

I am not surprised at Mr. Burton admitting that he is loth to cross swords with Mr. Divers as an advocate of the B.G.A. I think, if I read right, Mr. Burton would give his sympathy, but not his help. Employees, as Mr. Burton says, can be obtained at 16s. per week. I wonder if he would like to be one of them. He also says that fruit and vegetables can be bought as cheap as they can be grown [in private gardens.] Perhaps they can, but all the same they have to be cultivated by employed labour, so he will see that capital cannot do without labour. It does not occur to him, however, that the B.G.A. is doing good in bringing forward questions for reform. Has any other society ever attempted it? Mr. Burton remarks that the B.G.A. consists only of a few public park and nursery employees; which makes me think whether he has been writing about something he does not know, for the B.G.A. has some of the best experienced and most honoured men in our profession as members, who do not advocate as trade unionists, but are trying to uplift those who have been so long downtrodden. If gardeners could only see the good that could be done by uniting, and think more of their own interests we should rise to a standard that would be a credit to our calling.—CHARLES HILL, West Kensington.

Canker in Apple Trees.

I shall be glad if "H. D." will explain what he means by growers of Apples being less concerned about canker, since someone—I forget the name—prescribed certain treatment. In this country, so far as I have noticed, only one form of canker is described, whereas two forms are recognised in the United States, one causing the familiar patches on the trunks and main branches, and the other causing the bursting and peeling off of the bark on young shoots. I have read, too, about "true" and "false" canker, but do not know what is meant by the latter.

I have three-quarters of an acre of bush-shaped Cox's Orange on the Paradise, growing in light soil, 12in to 18in deep over sand. They were planted seven years ago, and grew well, and bore excellent fruit for two years after their second year from the planting. But two years ago they began to show excrescences on their young shoots, and these have developed (where they were not cut off) into canker, while they have also been attacked severely by scab, in spite of spraying. Moreover, after spraying with Bordeaux mixture, just after the blossoms fell, the trees lost nearly all their leaves, whether from the spraying or from scab I cannot tell. They have had a good dressing of London dung once, and of cow manure once, while artificials have been applied every year but one. This autumn I have cut them back severely to get rid of cankerous and scabby growths, removing the cuttings for burning. The cankered patches in trunks and main branches have been cut out annually, tar being applied to the cut places; or badly cankered branches have been removed altogether. Caustic winter wash has been applied in every season but the last, when sulphate of copper, to prevent scab, was used instead.

What more could I do? The only other varieties that canker badly out of thirty varieties (many only experimental rows or half rows) in the field are King of the Pippins, Ribston Pippin, Potts's Seedling, and, to a less extent, Fearn's Pippin. I did not try lime till last winter on the Cox's Orange, but they had been dressed with basic superphosphate and other artificials.

As to planting trees on the surface of the soil and mounding them up, it would not do at all on my light soil. As it is, the trees are apt to be blown half down when a great gale occurs, although there is a good shelter belt of trees as well as a high hedge all round the field, with a double row of Damsons down

the middle, just to the south-west of the Cox's. Even on heavy land I doubt the expediency of planting on the surface; for in time the soil is drawn away from the trees, leaving the roots quite nearly enough bare, even when planting has been done in the ordinary way. It is almost impossible to hoe up to trees, or at least to bush trees, because the low branches are in the way, and if they were planted on the surface it would be necessary, after each hoeing, to throw back the soil drawn from them, at great labour and expense. As to placing slabs of stone under trees, that is one of the "counsels of perfection," if wise at all, which people who are concerned with only a small orchard so frequently give. Fancy buying, carting, and placing 300 slabs per acre on fifty or 100 acres!—A GROWER.

The Chrysanthemum Audit.

We are again indebted to Mr. E. Molyneux for the Chrysanthemum analysis, and although it is interesting it is not convincing, for it is obvious that many of the varieties have been favoured more by repute than by the experience of the growers. I must, however, "cross swords" with Mr. Molyneux for saying in his introductory remarks that, "The best Japanese varieties are no better to-day than they were ten years ago." Of course, ideas of what is better must vary; and it is all a matter of opinion, and the opinion of Mr. Molyneux can be of no small value. Still, I am always willing to learn, and must, with all good feeling, ask my friend to name any thirteen varieties of ten years ago that can in any way compare with the same numbers first on the list in the present audit. Were there then any canary yellows to equal F. S. Vallis and Bessie Godfrey; rich yellows to equal Duchess of Sutherland and Algernon Davis (the last-named will prove to be yellow in most seasons); Mrs. A. T. Miller among whites; Reginald Vallis and Walter Jinks among the purplish rose tints? I have no need to go any further.

Unfortunately I cannot lay hands on the audit of ten years ago (perhaps you can, Mr. Editor); but I have before me an audit of the most popular varieties arranged by Mr. Shea, the president of the N.C.S., published nine years ago, and the most prominent are Phœbus (top of the poll), Australie, Mons. Chenon de Léché, Mme. Carnot, Mme. G. Henri, Mrs. G. W. Palmer, Simplicity, Vivian Morel, and Pride of Madford. The best eighteen new Japs in the *Journal of Horticulture* audit of ten years ago include G. J. Warren and Lady Hanham (equal firsts), Julia Scaramanga, Mrs. G. W. Palmer, Western King, Mary Molyneux, Australie, Royal Standard, Master H. Tucker, Mrs. F. A. Bevan, and N.C.S. Jubilee; and only five years ago the top fourteen in the audit of the best fifty included Mons. Louis Remy (the top), Florence Molyneux, Australie, Mme. Carnot, Mrs. Greenfield, Nellie Pockett, Mme. Herrewé, Lord Ludlow, and M. Chenon de Léché. No less than ten of the present Jap growers who voted in the present audit were voters five years ago. Will any of these say how many of the above-mentioned varieties are preferred to those in the present audit, or can in any way be compared?

Yes, Mr. Molyneux, please prove what you say or withdraw it. Raisers and specialists are charged with much, but do not let it be said that for ten years they have given growers no improved varieties unless it really be true.

I also much regret to notice how frequently of late Mr. Molyneux has written down the exhibition Jap and praised the decorative varieties. I have questioned myself whether he is quite justified, and have decided that he is not. Decorative varieties are very useful, but will never become media for displaying the grower's skill or interest at the autumn shows. The list of decorative varieties is certainly behind the times, for it is remarkable for the number of good varieties which are omitted, or are credited with few votes only. Heston White, the white sport of Mme. Felix Perrin (syn. with Framfield Pink), is one of the most useful we have. Miss B. Miller, François Pilan, Mrs. E. V. Freeman, Winter Queen, Mary McBean, Pink Ivory, and N.C.S. Jubilee are a few of the omissions, and all of which are popular market varieties.

Returning to the fifty Japanese, it is worth noting that Edith Jameson obtains in this class 17 votes, but only three in that for the twelve new Japs; whilst O. H. Broomhead is credited with 19 and 9. Dorothy Gouldsmith has 9 and 8, and W. Ring 7 and 9, in their respective classes. Surely if the first has 17 votes in one class it should receive more than three in the other; and if the last named gets 9 as one of the best twelve, it ought to receive more than Edith Jameson in the fifty class. Hilda Rowley with 7 votes in the larger class gets no mention in the other, yet it is a promising variety, and all are novelties of last season. I am surprised, too, at the position of Lady Talbot. The whole of the twenty-seven who voted for it cannot have grown it. Another surprise is the omission of several really good varieties. Mary Mason is bound to become popular, and this is only one that is not mentioned. It is superior to several which are placed among the twelve new Japs. Norfolk Blush is another that has a bright future. Mrs. S. Bott, with only four votes, and Miss Miriam Hankey with eight, are immensely

superior to many placed higher in the list of fifty. I could enlarge on other remarkable omissions, but space and modesty forbid.—W. J. GODFREY, Exmouth.

National Dahlia Society.

If one may judge the strength of a society by the number of members attending the annual general meeting, it would appear that the National Dahlia Society is in a bad way; but most of us know in a general way that such meetings are purely formal, and that it does not pay members to come long distances for such a purpose. On the other hand, when one notes the fact that only twenty-eight new members were added to the list last year, and that it has become necessary to make the trade awards purely honorary, surely it is time to seek the cause with a view to a cure. That the Dahlia is less popular I take it no person in the trade will admit, for without exception the sales advance each year, showing that the number of admirers is on the increase, therefore this cannot be the reason. I am under the impression that the amateur fanciers never come in touch with the society at all, most of them small growers who exhibit at their own local shows, and merely attend the senior society to see the novelties. I think that the schedule should have classes inserted to attract this section. Ask a small grower to join the National Society? What for? says he, and it surely puzzles the querist to give a decent reason. Probably if this meets the eye of the new secretary he will be able to put me on the right track. But it is no use grumbling and growling, for it is just as easy to give a little help. I suggest that our new broom should take a leaf out of the Sweet Pea secretary's book; we should then quickly obtain new members.

I suggest that this is the right and proper time to amalgamate the London Dahlia Union, for I could never see the necessity for the existence of both societies, except the ultra conservatism of the National body, who refused to hold two shows. Perhaps the success of the younger section has by this time convinced the National Society that a second show is now a necessity. If so, why not make one body more powerful? not that there is any friction between them, for the members of one constitute the other, only working under dual management. The only drawback to such a scheme is the subscription list, but with the advent of new members this should disappear.—R.

[We sincerely hope that some step will at length be taken in this matter. Could our correspondent (who is a well-known trade grower) not induce his friends to convene for the purpose of arranging matters?—Ed.]

Folklore of Speedwells.

"J. R. S. C." raises a great number of points to reply to, which would take up more space than the subject is perhaps worth. Veronica first appears in Fuchius' "Historia Stirpium," 1542, the name being applied to *V. officinalis*, the *Betonica* of Paulus Aeginate, and to *Linaria spuria*, which was long known as *V. femina*, Fuch. Turner, 1548, names *V. officinalis* by the older name, and gives English equivalents, one of which, *Fluellin*, has a meaning which I believe is unprintable. *Alsine* is Chickweed, and it has been applied, as well as to *Stellaria*, to other plants, including four *Veronicas*, viz., *V. arvensis*, *V. agrestis*, *V. hederifolia*, and *V. triphyllus*. *V. Chamædrys* appears in Anglo-Saxon times as *Uermerica* (A.S.—throtu), and also as *Berbonaces* (A.S.—wyrte). Along with *Vervain* it was called also *Hierobotanum*. *V. Beccabunga*, too, enjoys a very antiquated history, our *Brook-lime* being in direct philological descent from *hleomoc*, *Leomeke*, *Lempke*, *Linke*, &c. *Well-ink* is still a Scottish designation for the plant.

Veronica, as I wrote previously, has been favoured with numerous definitions. Millar mentions a princess of that name, who first discovered its properties! A writer in "Notes and Queries," 1854, derives it from the Arabic *Vurinika*. Linnaeus says it is from *Vettones*, a tribal name. That mentioned by "J. R. S. C." is of comparatively recent date. The legend of the handkerchief with its vera icon is very ancient. *Vide*, Butler's "Lives," and Hone's "Every Day Book," and Chambers's "Book of Days." *Veronica*, who was afterwards canonised, died in 1497, and some suppose the name is connected with this saint. *Alphita*, dating from the middle of the fifteenth century, provides many examples of name-changes. Thus "*Beronica*" is referred to *Smirtus*, under which "*benotica*, *veronica*" are given as equivalents, a kind of varnish being the object represented. I may remark in conclusion that it is impossible to trust any modern authority implicitly regarding old plant names, at least those in use earlier than the sixteenth century, and many much later. Though not important, I may add that "Paul" was a physician who lived in the seventh century of our era; who is supposed to have been a native of the island of *Ægina*; who wrote in Greek and Arabic, and who first became known to the learned in 1528, when one of his works was published.—R. P. B.

Societies.

R.H.S. Scientific Committee, Dec. 31st.

Present: Mr. A. E. Bowles, M.A., F.L.S., F.E.S., (in the chair), Messrs. A. Worsley, C. H. Hooper, J. W. Odell, and F. J. Chittenden, hon. secretary.

CANKERED (?) ROSE ROOTS.—A report was received from Mr. Gissow concerning the Rose roots shown at the last meeting by Mr. Jenkins, as follows: "I find the trouble with the Rose roots is not canker, and cannot be transferred from one plant to another. It is generally accepted that canker is caused (a) by frost, (b) by fungus, (c) by any other mechanical injury which fungi have infested. In the present case there is no fungus present, and if the root in the attacked plant (when repotting) is cut away, no injury will be done to the plant. The growth is nothing but a continuous formation of adventitious roots, especially where the root is bent or injured. New callus is formed, and from that callus rootlets are everywhere sent out, but as the plant depends on the root system of the Manetti no use is made of these roots, and they develop but little."

GREASE BANDS AND WINTER MOTH.—Messrs. W. Voss and Co., of Millwall, showed specimens of grease bands taken from trees on Mr. Mitchell's fruit farm, Enfield Highway, covered with both male and female winter moths (*Cheimatobia brumata*). The bands had been placed on the trees in the middle of November, and no other insects but these had been caught with the exception of two or three weevils. The chairman remarked that the time of appearance of this moth varied greatly with the seasons, frequently being found as early as near the beginning of October. Grease banding to be thoroughly efficient should be commenced then, and the bands should be kept sticky until near the end of March in order to capture other species of a similar nature.

SEED AND SOIL INOCULATION.—Mr. Chittenden gave some account of his experiments with seed and soil inoculation of leguminous crops.

DOUBLE ANEMONE BLANDA.—Rev. Canon Ellacombe sent buds of this beautiful form which has occurred in his garden, remarking that it is the first *Anemone* to show bud this season.

Bristol Gardeners'.

BUTTERFLIES.

The usual fortnightly meeting was held on Thursday, January 2, at St. John's Parish Room, and was presided over by Mr. A. O. Shelton. The lecture was upon "Butterflies and Moths," and was given by Mr. L. Stafford, Caerleon, Mon., representative of the Newport M.I.A. Mr. Stafford is an enthusiastic entomologist. His collection comprises practically all the British varieties of butterflies and most of the moths, the result of nearly twenty years' work. The lecturer had fourteen cases of insects on view, which added interest to the lecture, and for which he was awarded a special certificate. Mr. Stafford said there are from sixty to seventy varieties of British butterflies and hundreds of moths; they belong to the order of *Lepidoptera*. These are true insects, because they pass through four stages—egg, caterpillar, pupa, and imago, the latter of which have three divisions—head, thorax, and abdomen. The female insect will fly miles to find a suitable tree or plant on which to deposit its eggs. The caterpillar when hatched will devour two or three times its own weight in a few hours. Its one aim is to prepare for the next stage, the pupa, from which came out the perfect insect. Mr. Stafford drew a beautiful analogy between these insects and man. It should be, he said, our one aim to prepare for the next stage, and after lying in a comatose state, we shall arise to a new and beautiful life at the great awakening. The lecturer was accorded a very hearty vote of thanks. For two *Primulas*, Messrs. Shelton and Curtis were placed respectively.—H. W.

Birmingham Gardeners'.

TREES FOR TOWNS.

This association held its fortnightly meeting on the 16th December, when Mr. A. D. Christie, late gardener to the Marquis of Hertford, Rugeley Hall, Alcester, gave a lecture entitled "Planting in Town Gardens and Streets." The chair was occupied by Mr. Walter Jones. Mr. Christie alluded to the benefits accruing from a study of not only the beauty of trees in a landscape, but also from a hygienic and commercial aspect. He adverted to a more extended adopting of trees suitable for towns, and would feel inclined to advise corporate bodies to set apart a space of ground for the purpose of a trial nursery. They could then select the kind of tree found to have flourished best. He considered the *Platanus* (*Platanus occidentalis* and *orientalis*) the best town trees, but to avoid a monotonous effect he would not introduce them exclusively. Select other suitable kinds, sparingly, however. The Lime, chiefly owing to its early defoliation, also proneness to become dirty from the impurities of the atmosphere, was not available. One of the members here suggested that the Tulip tree (*Lirioden-*

dron tulipifera) would prove an excellent town tree. Special reference was made to the due preparation of the sites both as regards drainage and a liberal supply of good soil. Exception was taken to the heterogeneous character of the trees planted in the Kingsway, London, and which will never assume the uniform and stately aspect of an avenue planted with, for instance, only one or two kinds of trees. One of the least serviceable trees for planting where smoke abounds is the Horse Chestnut; not so, though, its compeer, the Spanish Chestnut. The address was listened to with rapt attention, and led to an interesting discussion.—W. G.

Royal Meteorological.

BALLOON OBSERVATIONS.

The first meeting of the session was held on Wednesday, the 20th ult. The meeting was largely devoted to the consideration of the reports on the results obtained by the balloon observations made in the British Isles, July 22 to 27 last. The International Aéronautical Commission has for some years set apart the first Thursday in each month for the ascent of kites and balloons, but at last year's conference it was decided to make a special effort to obtain information on a series of consecutive days, and the last week in July was finally decided upon for the purpose. Twenty-five balloons with registering instruments were sent up in England and Scotland during the week, under the direction of Mr. W. H. Dines, F.R.S., at Pyron Hill, Oxon, and at Crinan on the West Coast of Scotland; Mr. J. E. Petavel, F.R.S., at Manchester; Capt. C. H. Ley, R.E., at Sellack, Herefordshire; and Mr. C. J. P. Cave, at Ditcham Park, Petersfield. Fourteen of the registering instruments have been found. Prof. W. E. Thrift also sent up a number of pilot balloons from Dublin. Nearly all the balloons drifted to the eastward, but several which reached a fair height fell within twenty miles of their starting point. The heights ranged up to over twelve and a half miles, the average being about seven and a half miles. The records showed that above seven and a half miles the temperature remained almost unaltered with change of height. A paper giving a discussion of the meteorological observations at the British kite stations, session 1906-1907, by Miss M. White, Mr. T. V. Pring, and Mr. J. E. Petavel, F.R.S., was also read. The authors found that the temperature gradient varies with the direction and the velocity of the wind, and also with the amount of clouds, being greatest for a north-west wind, and on clear and fine days. It appears that the direction of the wind alters at high levels, rotating in a clockwise direction, thus a south wind tends to become more westerly.

Birds and Fruit Buds.

In this communication it is not proposed to treat of the birds generally, but briefly to allude to the bud-destroying species.

HOUSE SPARROW.—In large towns and other centres of industry, about railway stations and goods departments, livery stables and farmsteadings, and in most places where there are human habitations and the usual accessories, the house sparrow is the greatest offender, especially in winter and very early spring. I have known sparrows to destroy the whole of the prospective crop of Gooseberries in a large garden (and many other gardens) in the environs of large towns, and even in villages for several years in succession, quite 90 per cent. of the buds being taken. The few buds left are almost invariably wood buds, so that the bushes are sparsely furnished each year with new growths, and had a very bare appearance. But it is not only in towns and villages that sparrows are destructive of fruit buds, as they often go further afield, invading allotments and fruit plantations, and "fall to" on the buds of Gooseberry and Red Currant bushes, and even assail Plum buds, particularly Damsons, and sometimes Apples and Pears in the opening bud.

Sometimes the depredations of the sparrows commence as early as November, but the usual time of attack is February, when the buds are on the swell, and then in the tenderest and primest condition. There is scarcely any excuse for this on the part of the sparrows, as the buds are, with rare exceptions, free from insects, though aphides are sometimes present when the buds are considerably advanced in swelling, particularly in the case of Apple blossom buds. This habit of sparrows is occasionally practised on Gooseberry blossoms, apparently for the nectar in the bloom, as they do not eat the flowers, and in consequence of interference with the fructifying organs the fruit does not set, but falls off. This habit of sparrows in interfering with the opening or opened buds and even flowers of Gooseberry bushes has been known for many years. Neither do they leave Cherry blooms alone. This occurs in all cases where the birds are excessively numerous, and no measures taken to reduce them proportionate to the natural food supplies.

That is one side of the sparrow's proclivities for destroying fruit buds and blossoms, for I have practised in places where they have not done any injury to the buds or blossoms of any kind of fruit tree or bush, and no protective or repressive measures have had to be made against them. This was from the simple reason that they were not so numerous as to be driven to seek out other sources of food than the usual supply they obtained by scavenging about homesteads, stables, farmsteads, warehouses, railway stations, streets, &c. These places are really the incentive to sparrow marauders on fruit bushes and tree buds, and it is in these feeding and near-by breeding places that relief must be sought from the sparrow nuisance.

BULLFINCH.—This bird is often the culprit where the sparrow is blamed, even in town gardens. In some of these I have noticed for several years past the annual visitations of bullfinches in February, where in other parts of the year not any of these birds were to be seen, and in most cases so thinned the Gooseberry and Currants (Red) of the buds that few berries gave trouble of gathering, while the Plum trees were so stripped of the blossom buds that they produced little beyond wood and leaves, and in one instance a Washington Plum tree ceased altogether to bear fruit, and that for seven consecutive years, so that it was last year stubbed up. The sparrows were blamed, and though the owners had as good opportunity of daily observation as myself, not one of the seven owners of the fruit bushes and trees had the least idea of the bullfinches having inflicted the damage and not the sparrows.

The damage a pair—they are usually paired when attack on fruit buds commences—of bullfinches is capable of in a garden or fruit plantation is astounding, even in suburban and village environs; but when it comes to country considerations and the vicinity of woods the only real self-protection for the fruit grower, especially in the case of standard trees, is slaughter or the capture of the birds before they commence onslaught on the buds. This means having access to wooded districts, and these are mostly closed against the birdcatcher, though with a good call-bird in a trap cage, and the attendant a good imitator of the bullfinches' notes, a number may be drawn from the precluded resorts, and the captures made repay the trouble by sale of them to "lovers of Nature," expressing it by enslaving the wild birds of the country in cages, and by doing their best to decimate rare species by the mania for collecting eggs, specimens of adults, while declaiming against their destruction by persons having something to lose. The only way to keep bullfinches in order is by resisting their invasions, and in one instance of my experience this was simply impracticable other than shooting them, in one season thirty-seven falling to the gun in respect of an ordinary private orchard, and certainly as many fell outside the limits through wounds, for bullfinches are incapable of learning better manners by keeping in the woods after being shot at, and there feeding on Sloe, Bird Cherry, Hawthorn, Crab, Larch, and Beech buds.

The bullfinches commence feeding on buds soon after Christmas, especially of plants that bear fruit, such as Gooseberries, Currants (Red and White, I have not known them to interfere with Black Currants), Plums, Damsons, Bullaces, sometimes Apples and Pears, and occasionally (which I have not observed notably) Cherries, Medlars, indeed most of the ligneous Rosaceae.

THE CHAFFINCH AND GREENFINCH are sometimes included in the list of bud-destroying birds but I have not noticed their depredations in this respect, though the former is sometimes very busy on the opening or opened buds of Cherries, Plums, and Apples, also of Gooseberries and Currants, some say for the nectar of the flowers, but this hardly exists in the unfolded blossoms, and there is more reason to suspect it is for the aphides, or chermes, or other insect larvae.

THE GREAT AND BLUE TITMOUSE sometimes come under the ban of the fruit grower for pulling half-expanded blossom buds to pieces, notably those of Currants, Pears, and Apples, and even the Cole Tit is accused of destroying Black Currant buds, and is worse than the Blue Tit at pecking the bunches of Pear and Apple blossom buds to pieces, while, lastly, the Long-tailed Tit is credited with interfering with the buds of Black Currants.

Now I am not going to dwell upon the object of the interference with blossom buds by the chaffinch, and tits, but to address my few remaining remarks to the prevention of blossom-bud destruction by birds, and shall simply mention wire cages and netting as outside the ordinary fruit grower's province, there being much less expensive means.

For bullfinches and sparrows I have found threading the bushes—all within reach of the ground—with black thread, so as to form coarse meshes, very effective. This, of course, is a very troublesome process, and the threads are not very desirable things to leave dangling on fruit bushes and trees. In former times—that is, over fifty years ago, it was a common practice to take advantage of the first drizzle of rain or mist after the new year to dust the bushes with freely-burned and newly-slaked lime, stone lime for preference. This, being well done, had the effect of freeing the bushes of overgrowths of

lichen and moss, and by adhering to the buds preventing birds from taking them. This was doubly advantageous by clearing the bushes of clogging overgrowths, and these, with the lime, falling on the ground, there acting beneficially as nutrients for imbibition by the roots. The work of dusting was effected by means of an old stocking mounted on a pole and by keeping to windward, or choosing a calm day, the operator was saved from much sneezing, sore eyelids, nostrils, and lips, even cracked hands.

Sometimes there was no drizzle of rain or "Scots" mist to bedew the bushes and admit of the lime being applied dry (apparently) so as to hold on. In this case and the "pipe" of the bullfinch being heard in the thick hedges, the chirping of sparrows being unheeded, for there were premiums paid by the overseers or churchwardens of parishes in those days on sparrows' eggs, young birds and adults, the freshly burned unslaked lime was simply placed in a bucket partly filled with water, and enough lime to form a limewash that might be distributed by means of syringe with a coarse rose. This, hot, was poured into another pail through a sieve with mesh not larger than the apertures of the rose of the syringe, and at once applied to the bushes, well coating them by overhead applications both ways (up and down the rows, and on both sides). Two persons were employed when the area to be got over was considerable, one preparing and another applying the hot limewash. The bullfinches came all the same, not to feed on the buds of the treated bushes and trees, but to settle on the hedges and afford good marks for the gunner with gun charged with "dust" shot. Those were days when no licence was needed by the "tenter boy," who, although only supplied with powder, always found means of adding shot. Some, even housewives, improved on the limewash by adding copperas or green vitriol, about a pound to a three gallon pailful of limewash, for what was good for vermin and sweetening of indoor walls must be good also for fruit bushes, and mark, there was no science in those days but that justified by experience.

On the limewash, bettered by green vitriol addition as a fungicide, was further improved by Mr. Wm. Taylor's preparation, given some years ago in the *Journal of Horticulture*, as a dressing quite harmless to fruit trees, and obnoxious to birds. "The ingredients are a quarter peck or more of quite fresh quicklime, a pint of sulphur, and 1½ lb of softsoap. Choose lime that weighs very lightly, dip a few lumps in or sprinkle with water (hot water is the quickest in acting) and place in a bucket or other vessel, sprinkle a little of the sulphur thinly over it, then add more lime, just damp enough to slake, then add more sulphur on the top of it, repeating this process till all the sulphur is used. When the lime is slaked it will be seen that the sulphur is quite dissolved, and is scarcely visible except in the darker colour it has given to the lime. The quantity of lime used is not important so long as there is sufficient to dissolve the sulphur. The softsoap should be dissolved separately, and afterwards mixed with the lime and sulphur and sufficient water added to make three gallons in all. If the mixture is not thick enough to apply with a brush, clay or more lime may be added. If the glaring white is objected to, mix soot with it. If mixed in the way I have described and applied in dry weather, no amount of rain will wash it off, but if lime is used that has been some time exposed to the air, the sulphur will not properly dissolve, and the first shower will wash it off. It is necessary to caution my readers against dissolving the sulphur in a house containing plants in a growing state, as the gas emitted will burn up every leaf just as completely as if fire had been used. I have, however, never found trees injured from being painted with this mixture, it is only the sulphurous gas that is dangerous, and that probably would not injure plants in a dormant state."

In using the foregoing mixture, care must be taken that whilst smearing the buds they are not injured or dislocated. It may be dashed amongst bushes with a whitewash brush, or made thin enough to be passed through a syringe, always taking the precaution against clogging by straining. Birds will not touch buds that are well coated with the mixture, and there is the still further consideration that mites will give the bushes or trees a wide berth, and even the mildews that have alarmed some people out of all reasonableness, and caused edicts to be issued, and as promptly withdrawn within the year of promulgation.

There are the various caustic alkali washes that are also effective in keeping birds from taking the buds of fruit trees if only they are applied in time, especially the washes of which softsoap and paraffin oil form part, such as those expounded by Mr. Spencer Pickering, and known as the "Woburn Winter Wash," and the very similar, if not identical, preparation of Mr. W. E. Collinge. The two latter are not likely to prove so injurious to the bushes and trees as the older caustic soda and pearlash preparation is likely to prove in a run of consecutive years, yet the very idea of caustic soda is enough to make one quake for the consequences to bark from long continued application, and I therefore advise the two first named compositions—the limewash and Taylor's—as more suitable for warding off the birds and giving best results in the end.—G. ABBEY.



Packing Fruit.

The products sent from the South of France and Algeria to Paris, England, and Germany, even Russia, do not always reach their destination in a perfect state of preservation, although of the best quality. Soft pulp fruits in particular, like the Peach, often bear traces of a long and tedious journey. Consequently on the table they give but a poor idea of what they were at time of gathering. As a rule, defective packing is almost the sole cause of this state of affairs. Certainly railway companies might make an effort with a view to protection of the fragile packages confided to their care, though it is very difficult, if not impossible, to compel their employees to treat certain ones with precaution. Thus the forwarder must do the utmost to assure protection of his merchandise, and place it out of reach of jolts and rough handling.

Improvements in packing should be the aim of producers, professors of agriculture, and carriers, observed Mr. Noblemaire at the banquet of the Marseilles Packing Show in September, 1906. However, it is not enough for fruit to reach its destination in the best of conditions, it must also attract and please the buyer by the way it is presented. The packing industry then is not limited to manufacture of wooden or osier cases of any dimensions, nor is the work of the packer merely a question of piling up the flowers or fruit with the only object of making the best use of the available space. The manufacturer should assist the commission agent by ingenious inventions, trifles in themselves, but which decide the result of sales. This explains the appearance at agricultural shows of real curiosities, illustrating the competition amongst manufacturers of packing cases. Some cases are not returnable, chiefly those sent to foreign countries, Germany, Holland, Belgium, England, cost of transport by rail being too great. The question of such packing is then of great importance considering the amount of business which, with Germany alone, amounts to 5,000,000 or 6,000,000 francs in a good year.

Besides being cheap, these cases must be stout enough to withstand the effects of long journeys, like those made of cross grained barks, which are superior to those usually employed in Algeria, viz., round baskets, for packing Aubergines and Artichokes. They allow continuous entrance of air during the voyage, and easy inspection at the railway station. Baskets are also made of split Reeds with wooden ends for fruit and flowers. For the latter, a packing case maker invented a basket with the Reeds arranged vertically on the sides, which gives great rigidity. Besides the Reed, much employed, Poplar wood holds a good rank for open-work rectangular or truncated cone-shaped cases. Something better is done for Strawberries, which demand very delicate handling. Six little wooden baskets, very elegantly made, containing the fruit, are placed in an osier basket. The non-returnable cases are not roughly made as one would suppose. Very pretty ones are met with for choice fruits. Mr. Ballanche gives special attention to Peaches, which he packs in thick cardboard boxes, protected at each corner by strips. A layer of wood fibre covers the bottom, and the box is divided into twenty-four compartments by squares of cardboard, and lined with cotton wool. A Peach is placed in each of these compartments. Two wooden lids fastened at each corner with a metal rod give rigidity to the box.

In the same class of ideas the St. Charles Paste Board Works of Marseilles has adopted a box made of grooved cardboard, containing four or eight other little boxes, each with inner divisions for the Peaches. These little cases are separated from their common envelope by an empty space formed of a double partition, which protects the contents against violent jolts. Similar packing boxes are made to be sent by post for private consumption. Mr. Giaveli, of Marseilles, employs a pretty little case containing four baskets. It is made of strips of wood placed at intervals with a square upright at each corner. The little baskets comprise a Pine wood board as bottom, and pieces of the same wood for handle and sides. All is secured with little strips.

For long, sometimes very long, voyages, to and fro, the cases are made stouter. Commission agents have quite a collection. The most common type is the decorticated osier for fruit and vegetables, which is both strong and very light. Open-work wooden cases are also made with a double bottom; others have only a frame and wooden bottom, the sides being osier or even wire gauze. Then there are elliptic, cylindric, truncated, cone-shaped baskets, made chiefly of split Reeds placed vertically

and fastened together with wire or merely interwoven. A carrier at the Montpellier Railway Station has invented a case containing two little open-work trays, supported by tenons for cut flowers.

All these cases and baskets, in spite of their advantages, are none the less very cumbersome when returned by rail, especially for commission agents during the winter season. Could not this inconvenience be remedied? It would show little acquaintance with manufacturers to suppose them at a loss for so little. They have adopted dismountable cases, generally formed of open-work panels of Poplar wood, assembled in different ways. A Perpignan case manufacturer, Mr. R. Comte, makes the sides interdependent, and they are fitted together by running the top and bottom in grooves on the interior sides. Several trays contribute to rigidity of the case, which has no hinges. Other dismountable cases are furnished with ironwork, though as interesting and rigid as the others.

In another category we might class the dismountable frames to facilitate handling in grouping the cases. One of them has hooks. They perfectly protect the cases. At the recent packing show at Marseilles, organised by the Paris-Lyons Mediterranean Railway Company, there was an exhibit of a shelf railway truck to carry perishable articles. An iron rod runs through the vertical axis of the vehicle and supports a screw. Ventilating fans are fixed on this rod inside the truck. The screw, worked by the air while the train is in motion, turns the fans, which thus continually supply air to the cases and aid their preservation. However, packing fruit in cases constructed according to the rules of art, with or without compartments or protective partitions, is not enough to assure arrival in good condition. One must know how to select the materials which surround the fruit. It would be a mistake to think that shavings, hay, paper, &c., may be used indifferently. Each speciality must be placed in a suitable substance. Thus most fruit, especially table Grapes, keep good for a very long time in waste cork dust, which enables rapid and very economic packing. Pulverised Dutch peat is also being tried, and it protects the fruit against humidity without communicating any odour. The virtues of peat are well known; and Tomatoes, The Love-Apple of Provence, cannot endure some contacts; it must have wood fibre in an intelligently calculated layer. Algerian table Grapes are forwarded in light boxes lined with lace paper, which, it is said, has a happy effect on sale price. We shall say nothing about flower packing, which is a matter of taste, and shippers of the "Côte d'Azur" know how to select their artists.—(Translated from "Cosmos," August 17, 1907.)

A Novel Way of Gathering Fruit.

There is an old saying that there are other ways of killing a dog than that of choking it with butter. The same may be said of the gardener with regard to fruit gathering. To the average gardener (as to myself) it would doubtless appear a trifle comical to see a fellow going off to gather his store Apples armed with a shrimp net, yet such was my experience a short time since. At first I felt inclined to laugh, but when I observed the ease with which many fine fruits were netted, which could not be reached from the ladder, I felt bound to admit that the laugh was on the other side, and that I had learned a lesson from my humble-minded brother.—E. T. L.

Pear, Vicar of Winkfield.

This long and, when well grown, somewhat handsome Pear is of greater excellence for exhibition purposes than any other, though it has its good points. Dr. Hogg says it was originally found growing wild in a wood in France about 1760, and distributed under various names throughout its native country, and was introduced here by the Vicar of Winkfield in Berkshire, and so got its usual English name. It is curious that one of its French names, and one by which it is sometimes known in this country, is Bon Curé. For ornamental purposes it is a good variety to grow, as it makes a very large orchard standard, and as a pyramid, either on the Quince or Pear, one of the handsomest specimens of any variety. It makes, too, an excellent cordon, and bears well on the Quince in any form.

In a good summer when well grown in a favourable situation it makes a very fair dessert Pear for a month or so after Christmas, but normally it should be regarded as a stewing Pear and that only, being of very fair quality in December and a month before or after, according to the lateness of the season. One often sees it on the exhibition table in a very immature state, partly because it ought to be allowed to hang on the tree till very late in the autumn, say the first or second week in November, according to the season, and partly because it needs both a good position on a favourable soil and a good season to come to anything like such a degree of perfection as it is capable of attaining. For the amateur who has not room for many Pears the inference from the above remarks is that there are other Pears which it would be better worth his while to plant, even for stewing purposes, e.g., Cattillac and Bellissime d'Hiver.—A. PERKS.

A Selection from our Apple Election.

DESSERT VARIETIES.

Name.	Season.
Beauty of Bath	July and August.
Mr. Gladstone	Mid-July and August.
Devonshire Quarrenden	August and September.
Lady Sudeley	August and September.
Irish Peach	Early August.
Worcestershire Pearmain	September and October.
James Grieve	September to November.
Mother Apple	October.
Margil	October and November.
*King of the Pippins	October to February.
Adam's Pearmain	November to January.
Mannington's Pearmain	November to February.
*Cor's Orange Pippin	November to April.
Allington Pippin	November to February.
*Blenheim Orange	November to February.
*Ribston Pippin	November to February.
*Claygate Pearmain	January to March.
Scarlet Nonpareil	January to April.
Sturmer Pippin	March to June.

CULINARY VARIETIES.

Name.	Season.
Lord Grosvenor	August and September.
Lord Suffield	August and early September.
*Potts' Seedling	August and September.
Ecklinville Seedling	September and October.
Stirling Castle	September.
Grenadier	October.
*Warner's King	October and November.
Bismarck	October and November.
Peasgood's Nonesuch	October to December.
Tower of Glamis	October to December.
Newton Wonder	November to May.
Lane's Prince Albert	November to April.
*Blenheim Orange	November to February.
Lord Derby	November and December.
Golden Noble	November to January.
Norfolk Beauty	December and January.
Bramley's Seedling	December to April.
*Dumelow's Seedling (Wellington)	December to June.
Alfriston	January to March.
Annie Elizabeth	March and April.

* Subject to canker on clay soil.

A Delicious December Pear.

Mr. H. H. Raschen has very kindly forwarded to me a few samples of Beurré Gris de Chin, a variety for which he obtained the award of the R.H.S. a few years ago. The fruits received were of medium size, skin yellow, spotted with russet. In regard to flavour I have no hesitation in saying I have tasted nothing in the way of Pears at Christmas time more delicious. They were as melting and juicy as a Peach in summer, and of rich sweet flavour. All who require Pears of the highest quality at midwinter should give this variety a trial.—H. D.

Pear, Beurré Nagan.

This new and excellent introduction received an award of merit from the Fruit and Vegetable Committee of the Royal Horticultural Society on December 10 last. From our illustration it will be seen to be a large and heavy Pear, some of the fruits scaling close upon half a pound. Our former description reads:—"An excellent December dessert Pear; fruit wrinkled at the stalk like Beurré Superfin, pyriform, broad at middle; stalk 1½ in long; skin yellow covered with minute dots; eye set in a deep broad basin, with erect and closed segments; flesh white, rich, melting and delicious." Messrs. Cheal and Sons, Crawley, are the introducers.

Grime's Golden Pippin.

This is an American Apple, and has been grown in this country, and as long ago as 1883 was exhibited on the occasion of the National Apple Congress at Chiswick. It was also shown at the second conference in 1888, but was described as a dessert or cooking Apple of small size, oblong, yellow, sweet, and ripening during the winter months. At the present day, however, it does not seem to be much grown in this country. The fruit we had measured 2½ in long and the same in width, so that it was really a large Apple. It is oblong, with a very deep cavity at the top, slightly pitted, and having the eye nearly closed. At the base is a smooth cavity with a short stalk. The skin is smooth, bright yellow, clean, and tempting in appearance. It reminds us somewhat of our own Golden Noble, except in shape, for it is oblong and slightly angled along the sides, and not nearly so globular as that well-known variety. It is still quite hard, and evidently will last a long time. It is, of course, one of the fruits which is being sent to our shores from that new fruit-growing district in Canada, British Columbia. There the fruits grow to a large size, and present a tempting appearance on account of their size and bright colour. It will be in season now from December to February at least.

Microscopic Gardening.*

I remember being much impressed by the accounts of the forests of fungoid vegetation described in some of the microscopic authorities of twenty-five to thirty years ago, and even now it seems difficult to view calmly such sketches as Carpentier's of the forest to be found in the stomach of a beetle, or Hogg's section of a Grape, though the enthusiasm these figures evoke pales when compared with that stimulated by the magnificent drawings which the Tulasnes have given us of gardens and forests of microscopic fungi. It is everyday knowledge now that such forests of fungi and other microscopic plants can be seen on any piece of decaying vegetable or animal remains, but with increasing familiarity with the phenomenon we trace the origin and progress of quite different views as to the significance of these microscopic organisms.

Long prior to the time I have referred to, indeed, and even dating from that of the earliest workers with the microscope, it was known that the water of pools and ditches, and especially infusions of plants, animals, &c., of all kinds, teem with living organisms; but it was not recognised definitely that vast numbers of these microscopic living beings—and even actively moving ones—are plants, growing on and in the various solid and liquid matters examined, as truly as visible and accepted plants grow on soil and in air and water. Perhaps the most important discovery in the history of cryptogamic botany was initiated here.

But even then observers had to content themselves with wandering through the newly discovered forests and fields of vegetation, describing what they saw as accurately and fully as possible, much as I suppose travelling botanists had to describe tropical trees and orchids, &c., before we knew how to grow them. No doubt, I do not err much in assuming that many more rare plants were lost in the attempt to rear them in days gone by than are lost now that so much is known about charcoal and tree-fern supports, peat and composts, drainage and ventilation of pots, and the regulation of temperature, light, &c., of hothouses. Well, the kind of change that has come over our knowledge of microscopic plants during this last busy quarter of a century has been almost entirely due to the initiation and improvement in methods of growing them—in the methods of microscopic gardening.

It will, no doubt, be conceded that if we were to become so big in proportion to our flower beds and plots, plants and seeds, &c., that a finger tip would cover the soil we sowed with

seeds which our eyes could not see, it would, I say, be conceded that we should not be so sure as we now are that a Wheat-plant comes from a grain of Wheat, a Cucumber plant from the flat seed so well known, or an Oak from an acorn. As it is, we know these things because we have sown the seed and seen the product—or have good evidence that others have. But even as things are, I make no doubt it would be easy for any of us to puzzle another with some seed or other.

Now, those who explored the forests of fungi were in just the stage we should be in if the assumption of Broddingnagian proportions spoilt our present relations of size to the seeds and soil. Millions of "seeds"—in the physiological sense—were discovered hanging on the trees and lying on

the ground, but it was as yet impossible to sow them and watch them grow; the beginnings of microscopic gardening were not yet. In the case of many introduced garden plants inquiry into their history and habits shows that each has passed through some such phases as the following. It was discovered by a traveller seeking for plants, but not concerned with, or not equipped for, any detailed botanical examination of the species. Collected specimens were then sent home and carefully figured, and found their rest in an herbarium, properly named and classified. Seeds or other suitable portions of the living plants sooner or later arrived, and were made the subject of experiments in garden or greenhouse, and grown; and as experience with such exotics grew more and more, special methods of treatment were found necessary and varieties of cultivation soon followed.

Now the history of microscopic plants and of the methods of microscopic gardening have been singularly like those of ordinary

plants and gardening. Prior to 1850 microscopic algae and fungi were being discovered by explorers in all directions, and enormous stores of figured and suitably prepared and labelled materials accumulated in collections. Then came one of the most active periods botany has ever known. Unger had discovered the spermatozoids of the moss in 1837, and Suminsky had explained the fertilisation of ferns in 1848, while Hofmeister's masterly treatise on the embryology of cryptogams appeared in 1849-51, and the names of Thwaites, Williamson, Carpenter, Berkeley, and other English workers are well known in this connection; but the microscopic algae and fungi were still a chaotic mass of collected forms, with the exception of a few isolated observations. Thuret, in 1853, Pringsheim and Cohn, in 1855, and De Bary about the same period were initiating an epoch which may be said to be distinguished by the observer watching the living plant and noting its peculiarities of growth and development instead of merely collecting it and giving it a name. The publication of Berkeley's masterly



Pear, Beurré Nagan.

* By the late H. Marshall Ward, D.Sc., F.R.S., before the Royal Horticultural Society 1897.

treatise on cryptogamic botany in 1857 marks the critical period.

Spores of fungi especially were now sown and their germination observed, and the names of the brothers Tulasne particularly stand forth in connection with this new departure. Not that spores had not been sown before, our own revered Berkeley having been one of the earliest and most careful observers, but the period now ushered in produced men who determined to cultivate microscopic plants as other plants are cultivated, having gained the assurance that as long as you merely know a few facts only about a plant of any kind you remain ignorant whether it is useful or noxious, your friend or your enemy—and this, whether the plant is a fungus or a weed of higher growth.

It was De Bary especially who introduced the new era. He pointed out that some of us must leave off merely collecting and naming the fungi and other microscopic plants found by explorers; that it is also not sufficient to put the living fungus under the microscope, just as it is not enough with a higher plant to merely watch its growth mixed with all the weeds of its neighbourhood. What is wanted is—we must obtain its spores or seeds, free from weeds, and cultivate it from spore to spore, from seed to seed, in good soil and under the best conditions. And here came the rub. For it is extremely difficult to obtain the spores free from weeds, just as it is difficult to obtain pure the seeds of Clover, grass, and other plants. Moreover, it is extremely difficult to make the microscopic plant grow and flourish when you have got it; for, like higher plants, they need special conditions of soil or other substratum, light, temperature, ventilation, and moisture.

We all know how hopeless it would be to try cultivating a *Cuscuta* or *Lathraea clandestina* in ordinary soil; they need a living plant as a substratum. So it is with many fungi. We know also how *Rhododendrons*, *Saxifrages*, *Dionaeas*, many orchids, ferns, bulbous plants, and so forth, need special treatment, and the same is true of fungi. Those who have the good fortune to successfully grow *Nelumbium*, *Victoria Regia*, and other tank-plants know that special conditions must be assured; so with numerous algae and fungi. Consequently, we see, microscopic gardening became an art just as is horticulture.

Let us suppose we have a shallow thin glass dish, the bottom of which is flat. If we place in this a thin slice of Potato, or pour into it a thin layer of gelatine to which a little sugar has been added, and leave it open in a room or outside, we shall find in a few days that a number of moulds, yeasts, and bacteria are growing on its surface. The number and kinds of these will depend on several circumstances, of which the season, temperature, moisture, and locality are important on the one hand, and the composition of the exposed fungus-bed on the other.

Now these growths are weeds, from spores either wafted in from the air, or carried in by flies, &c., or contained in the bed itself, and the experiment is to be compared to one where a garden bed of soil is dug over and left to Nature, and which would soon be covered by weeds, the seeds of which are carried to it by wind, birds, &c., or were already lying there ready to germinate. If in either case we cover over the bed with a glass roof, we can keep out the air-borne seeds from outside, but those already in the ground will soon supply a crop of weeds. If, however, we go further, and kill all the seeds present in the bed to start with, by so arranging matters that we can heat up the soil with its glass roof on, then we can either keep the bed free from plants or sow any we choose. Now botanists had for some time been in the habit of streaking such a prepared bed with the spores they wished to grow, and then, as soon as the little thin streak of fungus-plants appeared, taking a small portion off on the point of a clean needle, and again sowing in a narrow streak, and so on till they got only one kind of fungus on the bed. This procedure was modified in various ways by different observers, and Brefeld as early as 1874 had succeeded in so distributing these spores in gelatine that he lifted up only one spore in a drop of the gelatine, and examined its further growth under the microscope.

Clearly we may compare these methods of microscopic gardening with the common procedure in ordinary horticulture of sowing seeds in long, thin rows, and hoeing out the overcrowded ones and the weeds, and with the practice of pricking out and transplanting of seedlings. With the fungus spores, however, it is generally a case of dealing with spores and even plants which are quite invisible, except under high powers of the microscope, and it was not till comparatively recent times that methods were so improved that we could select and transplant these invisible organisms as we now do.

(To be continued.)

Decorative Species of *Calceolarias*

Calceolaria amplexicaulis should be more generally grown, as it succeeds in dry soils where the others are a failure. It is supposed to be more tender, but here it sometimes lives through the winter on a dry rockery slope. *C. integrifolia* is hardy, standing out most winters in the west, and makes a large bush; it seems quite happy on dry, sun-baked banks. *C. hyssopifolia*, a choice little plant for the rock garden, is not hardy.

Young Gardeners' Domain.

•• The prize is awarded to Mr. Albert Vickery for his excellent and seasonable letter on the forcing of hardy shrubs.

We have a letter from Mr. D. Watson, in which he says that the Mutual Writing Association, suggested by him in the "Domain" some weeks ago, has proved very successful and helpful, and he is much gratified at the response. We think that writers can learn much from each other in penmanship, spelling, composition, as well as, of course, horticulturally.

As we have not inserted our "Rules for the 'Domain'" for a considerable time, will new correspondents kindly observe that letters should be confined to about 500 words, the writing to be upon only one side of the paper, and to use foolscap or smaller-sized sheets. Many letters still reach us with the writing spread across a double page of a foot or 18in wide! This is awkward and quite unnecessary. Encouragement is given to original subjects as far as possible.

The Forcing of Hardy Shrubs.

The value of hardy shrubs for forcing purposes is now more recognised than formerly was the case, and in most establishments they are utilised to provide plants and flowers for house and conservatory during the winter and spring months. Plants are grown by nurserymen solely for this purpose; besides which a large number are imported from Holland. The earliest batch may be had in flower by Christmas, but February, March, and April are undoubtedly the months when forced shrubs are seen at their best. From five to six weeks are required to obtain plants in flower for the earlier months, but less time and heat are needed as the sun increases in power. Batches should be placed into heat at intervals (according to requirements) in a temperature of 50deg, gradually increasing it as the buds swell. It is a great mistake to place them in too high a temperature until the buds are well advanced. The plants should be syringed several times a day to soften the buds, always maintaining a moist atmosphere in the house. As the flowers begin to open the plants should be transferred to a cooler and dryer atmosphere, so as to prolong the flowering period. After the flowers are over, all worthless wood should be cut out and the plants placed in a cool house, giving them frequent manurial waterings to induce strong new growth. Towards the end of May the plants may be safely placed outside in a warm and sheltered position, to complete and ripen the new wood, on which depends the result of the next season's flower. By October the wood should be well ripened, and the plants can then be placed closely together in a convenient spot; plunging them to the rim in ashes, where they may be allowed to remain until required for use. The following are some of the principal subjects used for forcing purposes:—*Wistaria chinensis* and *W. multijuga*; *Prunus triloba*, *Pyrus Malus floribunda*, and *P. Schiedeckeri*, *Staphylea colchica*, *Viburnum tomentosum plicatum*, *Deutzia gracilis*, *Laburnum*; and of Lilac the varieties *Charles X.*, *Marie Legray*, *Madame Lemoine*, *Sour. de L. Späth*, and *President Grevy*.—A. VICKERY, Welbeck Abbey, Worksop, Notts.

Visiting Other Gardens.

I think some of my most pleasant hours, and I know some of the most instructive, have been spent in looking over other people's gardens. I have had opportunities during the past year or so in seeing some of the best gardens in the southern counties, and I am sure the time spent has not been wasted. It does not matter how small the place may be, you are almost sure to see something that if not entirely new, is possibly treated or grown differently. You see different ways of doing things in almost every case. I have never found a gardener who was unwilling to explain things or express his views upon any subject that a young gardener cares to ask him while looking over his place. I find that knowledge gained in this way seems to take hold far more than reading books, for if you do not see the work done, you see the result of other people's labour, and that, to my mind, is a great deal. I had an opportunity a few weeks ago to look round a garden that is specially noted for orchids. I think I should be quite right in saying that anyone could spend day after day there and still see something fresh. I was very much struck by the way in which the different classes are raised from seeds. Whenever I go round a fresh garden I always jot down in my note book the various things I see, and the most particular subjects the gardener is noted for. I always enjoy an hour or two in any public garden, and every under gardener should make a point of visiting Kew Gardens as often as he possibly can. I find it best to take one department at one time, and to take down notes for future reference. Everything is correctly named, which is not always the case in small gardens. Curiously, one is far more likely to remember the wrong name than the right one! While on the point of names, I may add that as far as my own experience goes, I find that in the majority of medium-sized gardens the herbaceous plant borders are very deficient of labels.

This is a great mistake. A visit to that particular branch at Kew will well repay any young gardener who wishes to improve himself. In fact, as I said before, you can learn something in almost any garden you visit; so my advice is: Pay a visit to as many fellow gardeners as possible, and learn.—W. E., Chertsey.

Unfavourable Weather and Garden Management.

To my mind, those who would manage a garden successfully must be always looking ahead and studying what is likely to come later on, as well as directing their attention to the present; and as snow may be expected at almost any time now, there is always plenty of work that can receive attention, such as cleaning out sheds, cleaning and oiling tools, and overhauling mowing machines, sorting Potatoes, making labels, sorting and tying Chrysanthemum stakes into bundles in their proper lengths, so as to have no trouble the next summer. Clear out all rubbish that may have collected under the paths of hothouses, also from under the hot water pipes, as this is often a harbour for cockroaches and other insects. Wash all dirty pots, and in a great many establishments there are plenty of these might be washed, and a saving of time effected. Due advantage should be taken of frosty weather, when the ground is hard, for executing such work as wheeling manure to ground that cannot be well reached on gravel walks, or where the ground is loose. The chief point to remember is that of adopting a good system of management, and utilising every opportunity for forwarding operations as far as can be done. The work must, to a certain extent, be arranged each day according to the weather. In the management of glass, too, attention to the weather is of great importance, as a rise or fall, which is quickly effected in the temperature, is due to the weather outside. The direction of the wind ought to be observed, so that ventilators on the windy side be kept closed, or only opened in the opposite direction to the wind. These may be only a few simple remarks, but to some I hope they will prove useful.—J. NISBS, Hollington Gardens, Newbury.

Keeping a Diary.

To my mind keeping a diary cannot be over-rated. To those who do not keep one, or to one just started, it may seem ridiculous to write down what has been sown, planted, potted, cut, or gathered during the day. Some may also think they can remember without taking so much trouble; but all the trouble that is taken will be well repaid. The more care, the greater the benefit. If a correct account of the day's work is kept it will be seen at the end of the year what a wonderful amount of information it contains. Not only will it contain cultural notes of a large amount of plants, but it will aid one in some of the most important duties a gardener is expected to perform, i.e., keep up a succession of flowers all the year round. And no doubt it is of great help to the man who is expected to furnish a special display at a given period of the year. Also as regards fruit under glass, what a lot of space can be filled with notes on this important part of horticulture. When taking notes on fruit, always make mention of the aspect of the house, as airin- and closing a house facing south is performed at a much different time of the day, as, say, one with a south-eastern aspect. Then, again, if one does work inside, with a little extra trouble even then a lot of valuable information can be extracted from the kitchen garden and pleasure grounds, though taken just once a week. A useful book for the beginner is one issued by Boots, the cash chemists, price sixpence. If this is kept filled up properly for a year, the one in possession will want to do better the following year, so a larger book must be obtained. Then the best way is to make your own dates down one side, and leave the opposite side for notes. My reason for writing this is to make some young gardeners think if it would not be worth making a start with the New Year. I am sure they who do start will learn the true value of it, as by so doing one's interest gets greater and greater. Keeping a diary means keeping an eye on all the main items of horticulture.—HYBRID, Kingston-on-Thames.

Plants Suitable for Training on Walls and Buildings.

To-day all over the country may be seen buildings and other structures altogether unsightly and devoid of beauty, which could be made beautiful by spending a little time and trouble in training a few climbers or shrubs upon them. The following are a few of the most suitable for the purpose, briefly described. The first place on buildings should be given to Roses, probably the best varieties for this purpose being William Allen Richardson and Gloire de Dijon. Then the next place may be given to the Clematis or Virgin's Bower. This plant requires strings or wire-netting to support it, preferably the latter, using diamond 6in mesh. The best varieties of this plant are Lady Londesborough, which produces flowers of a silvery colour; Clematis montana, small white; C. lanuginosa, mauve, and Duchess of Edinburgh, which has large and double flowers. Another pretty plant is Jasminum nudiflorum. Jasminum officinale is also very pretty, with white flowers during the summer months. It is necessary to support these plants to

the building by nailing. Then the common Honeysuckle (Lonicera caprifolium), is another excellent plant for this purpose. There are evergreen varieties, one being Lonicera sempervirens. The Loniceras usually flower in the spring; they will grow on any aspect. Ampelopsis Veitchi and Virginian Creeper are two well-known plants very commonly seen covering the whole of a building. Wistaria sinensis is similar to the Laburnum, but lavender in colour. It is also delightfully sweet scented. Then Crataegus pyracantha should also receive a place on a building. This plant is very pretty when it fruits freely, bearing clusters of red berries. Escallonia macrantha is worthy of consideration, being evergreen. For a low wall there is no plant more suitable than the Berberis Darwini. This plant will grow on any aspect. It bears orange coloured flowers in profusion. Berberis stenophylla is also suitable; it grows much more rapidly than Darwini, and produces golden yellow flowers. I must not omit to mention Cotoneaster microphylla. The flowers of this plant are very small, but it produces red berries. Then there are the Ivies (Hedera), one of the best being the giant-leaved Ivy, Hedera Helix dentata. Pyrus japonica and Ceanothus azureus are also good. I might say that plants when trained on a building serve another purpose besides that of beautifying it; they keep the walls drier and not damp as is generally supposed. The main points in the growing of climbers are: First, to plant in good soil, and second, give attention to pruning and training.—T. F. L., Loughborough.

Beans in Pots.

The winter is once more with us, and the choicest of the vegetables are already over in the kitchen garden, of which Beans form one of the most prized dishes. In most places a continual supply is needed throughout the winter. To cultivate the subject during the winter there must be ample heat and light to suit its requirements. The Cucumber or Melon house is generally the most suitable place to grow them in, where heat from 60deg to 70deg can be obtained. Successional sowings should be made from August till March. The seeds should be sown in 8in pots, the pots being well crocked, and a little more than half filled with soil, consisting of good loam, leaf mould, or decomposed cow manure, with a sprinkling of sharp sand. Place eight or nine seeds in each pot, and cover them with half an inch of soil. Before the plants become crowded they should be thinned to five or six in a pot, then be top-dressed, the same soil being used as for potting, with the addition of some approved artificial manure. As the plants advance they will need support, Hazel sprays being generally used for this purpose. The plants ought to be syringed well till they commence to flower, when syringing should be withheld till they have set. A little liquid manure will be of great assistance when they are bearing fruit. A moist atmosphere should be always kept, as they are subject to attacks of thrips and red spider. There are numerous varieties, among the best being Osborne's Early Forcing, Canadian Wonder, Plentiful, and No Plus Ultra.—C. LANGRIDGE, The Gardens, High Leigh, Hoddesdon, Herts.

Watering.

How many times this subject has been broached in the "Young Gardeners' Domain" I cannot say. At all events I am convinced that a short article on this all-important matter cannot but be helpful to the majority of young gardeners. It does not want much thought why this "feeding of plants" should be so very important, and yet how many batches of fine young plants may be put in the very best of composts, and eventually find their way to the rubbish heap through the gross carelessness of the man behind the waterpot. There are plenty of young men at the present day becoming merely plant killers, simply because they will not put their brains into action to think out the many diverse requirements of their charges. I am convinced that to become a good waterer entails a very careful study of every individual plant that is given over to one's care. One must not think that a growing plant in any way resembles a stone. If journeyman could only realise the immense amount of intricate machinery that is wrapped up in the most insignificant of plants, I am sure they would begin to wonder how the poor plants could combat so successfully with the ignorance that they sometimes have to endure. To put the matter more plainly, one must think that they are dealing with a thing that is almost human—a thing that feels every little change, be it ever so small. Every young journeyman must know that the roots of the plant are the main conductors of that plant's nutriment. Once they are damaged in any way the plant of necessity commences to deteriorate. Whether that deterioration is stopped of course depends on the thoughtfulness of the operator. Young gardeners should bear in mind that to be a good plant grower one must make a study of watering. Given a good compost, a correct temperature, and above all a careful attention to watering, so that a man can look with pride on a batch of plants that have been well grown, then, and not until then, can a man feel a genuine pleasure in being a gardener.—H. W.



Hardy Fruit Garden.

LIFTING AND ROOT-PRUNING.—At present there is no possibility of carrying out this work owing to the frozen condition of the land. But immediately the weather opens up there should be no delay in completing these operations, though for that matter it is never advisable to delay the work much beyond the end of the present month. Trees lifted and root-pruned too near spring are apt to suffer badly if a dry season follows. Lift the trees with care, and after severing strong roots having a downward tendency, and trimming those unavoidably broken in lifting, replant the trees upon the same site after preparation or upon one previously prepared in a different position.

PRUNING.—Get this work, whether on walls or in the open, pushed on as quickly as possible. It is recommended at times that Peaches and Nectarines should be unfasted from the walls for some weeks at this season. The practice has the advantage of delaying blossoming to some extent, but many growers must perforce attend to pruning and securing the trees at once, or neglect other work later in the season. When pruning large branches of any fruit trees, it should always be remembered that the rough jagged wounds so caused ought to be pared smooth with a sharp knife to assist the wounds in healing quickly. Endeavour as much as possible to leave the bud near the cut made in pruning on the outside of the branch, to ensure the centre of the tree being kept open. Horizontally trained trees are too frequently spoilt in their early stages by the pruner allowing the leader too much headway, being afraid to cut sufficiently near the top pair of branches.

BLACK CURRANTS.—When these have become established it will always be found necessary to remove some of the old wood each season to encourage and make room for the young shoots which are so necessary for continuing the supply of fruit. In pruning, see that all large abnormally shaped buds are removed, and have the whole of the prunings burnt at once. In this way the mite trouble may to a great extent be kept in subjection.

PROPAGATING BUSHES.—When pruning Gooseberries and Currants it will be found a good plan in many instances to propagate a number, according to future requirements. Red and White Currants and Gooseberries need to be grown on "legs," that is, they should have all the buds removed from the cuttings with the exception of about six or seven at the top of each. Black Currants need no preparation beyond cutting them off immediately below a joint.

PLANTING OUT NURSERY STOCK.—We have many times seen Gooseberries and Currants left in the cutting lines the second year after insertion. This is a mistake; it is better to take all up, as time can be found during the winter, and after pruning the growths made during the summer to 2in or 3in long, replant each bush separately in good land a foot apart in each direction. Well grown, sturdy little bushes can then be secured at the end of a couple of years from taking the cuttings.—J. W., Evesham.

Fruit Culture under Glass.

VINES: LATE HOUSES.—Up to this date it will have been necessary to go over the bunches at least twice a week to remove any decayed berries, and to keep the houses as cool and dry as possible, and in fine weather to ventilate early at the top ventilators to allow moisture to escape. With the air charged with moisture it will be well to give a little warmth by fire heat, just enough to chill the hot water pipes, and at the same time, if possible, afford a little top ventilation.

BOTTLING AND KEEPING GRAPES.—It is well at this date, wherever there are conveniences for keeping the bunches, to remove them from the Vines, and by so doing the bunches may be kept in a suitable temperature, and looked over daily to prevent decay. Use fresh charcoal in the bottles or racks to keep the water pure, at the same time cut the wood sufficiently long to keep the bunch free. It is always advisable to cut the bunches before they show signs of shrivelling. There are few better keeping varieties than Lady Downe's and Lady Hutt. I have kept them well into May.

PRUNING AND CLEANING.—The earlier the Vines are taken down and pruned the better, when their leaves are cast. It is a mistake to allow young Vines too much freedom at the start, as this weakens the cane in later years. For instance, Vines pruned on the spur system in a young state should be

cut back to within a yard of the soil. Strong ones may be allowed more, but if this is done care must be taken to secure an even break when the buds are bursting. It should be borne in mind that gross wood is not the best, and now is the time to remedy oversights of the past. With older Vines one often sees the spur growths anything but shapely, and with these in a long or rough state it is a difficult matter to keep the rods clean. Much may be done now by shortening back the worst spurs, taking two or three seasons to do the work. With rods that have broken badly, or any that have failed in any way, it is a good plan to allow a new rod to come from the base, selecting a well placed bud for the purpose. It is well to lime-wash the walls, placing some sulphur in the lime. Wash the woodwork thoroughly and canes with tepid water and a little carbolic soap, and when dry give a good dressing of Gishurst compound. All loose surface soil should be removed, and give a good top-dressing. Examine the borders, and if dry give a good soaking. This will last some time.—G. W., Brentford, Middlesex.

The Plant Houses.

CROTONS (CODYLÆUMS).—Two methods may be resorted to in propagating these ornamental-foliaged plants—"ringing" and cuttings. The former is preferable, as young plants rooted in this way almost invariably have better furnished and more highly coloured leaves near the base. Plants which have lost their bottom leaves through being used for room decoration are of little further value except for this purpose. Take off any leaves still remaining on the plants which are at all disfigured, and remove a narrow ring of the rind or bark, as near the remaining leaves as convenient. Another method is to make an upward cut about an inch in length, penetrating half-way through the stem, forming a tongue in a similar way to that of layering Carnations. Whichever method is employed, damp moss should be bound round the cut portion. Placed in a house with a temperature of 60deg F. to 70deg F. young roots will soon push out into the moss if it is kept moist. By these means useful decorative plants can be obtained in a comparatively short time. When nicely rooted the tops can be cut off and potted up in a spongy compost, standing them in a close propagating frame till the young plants take root in the new soil, air can then be gradually admitted. Cuttings should be inserted in small pots of sandy soil, and plunged in a propagating frame with a strong bottom heat. For convenience place a stake to each cutting, looping the leaves to this to prevent them drooping.

DRACÆNAS (CORDYLINES).—The "ringing" of these plants and the cuttings require similar treatment to that recommended for Crotons. Growth can also be obtained from the stems and fleshy roots, if they are cut up into pieces an inch or more in length and laid on the fibre of a propagating frame.

BEGONIA GLOIRE DE LORRAINE.—An early start is advisable in the propagating of this plant and similar varieties. Cuttings and mature leaves are both available. The latter method is preferable, as plants obtained by this means do not produce flowers so persistently during their season of growth as those rooted from cuttings. Select fully mature leaves for the purpose, leaving 1in to 2in of the stalk attached. Dribbled in light sandy soil so that the base of the leaves is just below the surface, they soon make roots in a propagating house. The leaves should not be placed in a close frame, or damping will probably ensue. Those intending propagating by cuttings should cut back the growths to half their original length and place them in a warm house.

GLOXINIAS AND TUBEROUS BEGONIAS.—A few tubers of each of these two plants may be started for an early batch. Shake them free of all the old soil, and place the tubers an inch apart in shallow boxes containing a compost of two parts leaf mould and one part coarse sand. Till growth commences it is better to only half bury the tubers in the soil. This will minimise the chance of them rotting through becoming too wet. January is the best month for sowing seeds of Begonias and Gloxinias. Plants raised now will flower in autumn after those grown from tubers are past their best. Seeds of the *Semperflorens* Begonias may also be sown this month.

GENERAL REMARKS.—Sow seeds and insert cuttings of *Clerodendron fallax*. Place a few *Clivias* in a warm house, also a number of the beautiful Japanese Maples. Their ornamental foliage makes them of great value for arranging with bulbs and other flowering plants in the greenhouse in early spring. The earliest bulbs of *Lilium longiflorum* and *L. Harrisii* are ready for top-dressing. Add a little fertiliser, Thomson's, for instance, to the soil. Shorten the growths of a few plants of *Salvia splendens* to obtain cuttings. Give *Euphorbia* (*Poinsettia*) *pulcherrima* and *E. fulgens* (*jacquiniaeflora*) a short period of rest after flowering before placing them in the propagating house to obtain cuttings. Only sufficient water will be necessary to prevent the growths shrivelling.—A. O., Kew, Surrey.



All Correspondence relating to editorial matters should be directed to "THE EDITOR," 12, MITRE COURT CHAMBERS, FLEET STREET, LONDON, E.C. Persons sending manuscript or photographs, when not specially requested by the editor, and making no demand for remuneration, are presumed to solicit publication without payment. In order that no misunderstanding may arise, and in order to secure the return of their contributions, contributors should state the fact that they expect remuneration, and in all cases, even when contributing voluntarily, correspondents should enclose a stamped envelope if they expect their enclosure to be returned.

R.H.S. RULES FOR JUDGING (J. M.).—Apply to the Royal Horticultural Society, Vincent Square, Westminster. The price is 1s. 6d. post free.

AMATEUR, DEFINITION OF (Idem).—You will find a definition of an amateur in the above-named book.

CHRYSANthemUMS (S. D., Sidmouth).—It certainly appears as though some obnoxious fumes reached the cuttings. Try to root some others in a partially bottom-heated frame, or even in a cold frame. A little heat at the base is helpful. Keep just a "crack" of air on, and wipe the inside of the glass twice or thrice each day.

ROSE NOTES, &c. (New Zealand).—Our issues of July 11 and 18; August 1, 8, 15, 22, 29; September 5 and 26; and October 3 and 24 each contain important Rose matter. The issue of the named date contains the analysis. For the other publications apply to Mr. Edward Mawley, V.M.H., Rosebank, Berkhamsted, Herts, the hon. secretary of the National Rose Society.

CONSTITUENTS OF CONCENTRATED BLOOD (W. Y.).—Moisture 17.25, organic matter and combined water 73.00, nitrogen 11.05 equal to ammonia 13.42, phosphoric acid calculated as phosphate of lime 1.65, alkaline salts and other constituents 5.95, insoluble siliceous matter 2.14. The nitrogen is in the ammonia. Dried blood is a concentrated source of nitrogen, which yields some fourteen to eighteen per cent. ammonia by gradual decomposition in the soil.

DIARY (C. B.).—Why not use a simply-ruled leather-covered writing book, such as any stationer can supply? We have employed one such for some years. It measures about 9in by 7in. Write your day's entry, then draw a line. Begin just under this for the next day, and so on. This leaves no waste space. It is advisable, too, to leave some room at the top to write (perhaps in red ink) the chief outstanding item of the day's news. Do you confine your diary merely to your gardening work?

CARPET BEDDING PLANTS (W. J. M.).—*Herniaria glabra*, darkest green, very neat, close growth, one of the best. *Mentha pulegium gibraltaricum*, dwarf, dense green growing plant, effective when surrounded with brighter colours. *Sedum lydium*, shining green, never exceeding 3in high. *Sedum glaucum*, light blue green, useful for margins. *Pyrethrum Tchihatchewi*, dwarf moss-like growing plant. *Veronica repens (alpina)*, pea-green, never more than an inch high, and very effective. Silver-leaved: *Antennaria tomentosa* (Snow Plant); *Arabis alpina variegata*; *Cerastium tomentosum* (Snow in Summer); *Mesembryanthemum cordifolium variegatum*. All are raised from cuttings or division.

MALMAISON CARNATIONS DISEASED (X. Y. Z.).—The leaves are quite yellow and dead, the tips apparently being the last to collapse, and at the base of leaves is some dark discolouration, which is due to the "spot" fungus (*Heterosporium echinulatum*). This may possibly be accounted for by the damp conditions of the autumn and winter still prevalent, the parasite making most advance on the weaker growing varieties; but it is also likely that the use of basic slag and kainit would have a deterrent effect on the growth, the all-important nitrogen not being correspondingly available with the phosphoric acid and potash. It is desirable in such cases to supply the nitrogen and even potassic elements in a readily available form, such as a liquid manure made by dissolving 1oz of saltpetre and 1oz of phosphate of potash per gallon of water, supplying this without wetting the leaves. It is usual, however, to top-dress Malmaison Carnations with an approved fertiliser, such as Clibran's "Ideal." Clay's Fertiliser, Standen's Plant Manure, and other advertised preparations, which, of course, should be used according to the instructions.

SURROUNDING PIPES FOR BOTTOM HEAT TO CUCUMBERS (Beginner).—The soil ought not to be placed upon the pipes but be surrounded by rubble, brickbats, or clinkers, and brought over the pipes about 6in, and over these a layer of sods or the rough parts of the compost, and upon this the soil. The soil should be broken up rather fine, but not sifted.

ROLLER FOR BLIND (Dublin).—The diameter of the roller should be 3in, and the wheel twice the diameter of the pole or roller, and have an indent of about 6in width and 2in or 3in deep to receive the cord. The roller only rests upon the rafters, and the wheels are clear, running alongside of the outside, and by having a wheel at the other end it will move up and down straight, about half an inch of play being left at each end. The shading must, of course, be pressed each time the roller is run up or down, but it does not injure the material any more than a mangle does linen.

BOOKS (Journeyman).—"Fruit Farming for Profit," by Mr. Geo. Bunyard, Maidstone, 2s. 9d. post free. "Profit-Fruit Growing," Messrs. Cheal and Sons, Crawley. "Pictorial Practical Fruit Culture," 1s., Cassell and Co. "Fruit Culture Under Glass," by David Thomson, 1881, William Blackwood and Sons, London. "Vegetables for Exhibition," Beckett. We do not know the price, nor the publishers. "The Cultivation of Vegetables," Sanders; price 5s. 4d.; W. and H. Collingridge. "The Cultivation of Vegetables and Flowers from Seeds and Roots," Sutton and Sons, Reading, 5s. 5d. Write for Messrs. Cassell and Co.'s list of shilling books. These works, we believe, can be ordered through booksellers. "The Book of Vegetables," Geo. Wythes, 2s. 9d; John Lane, London.

NAMES OF FRUIT.—Correspondents whose queries are unanswered in the present issue are respectfully requested to consult the following number. (Bob).—Your Apple is Court of Wick. (J. J. S.).—The Pears were unripe, and we are sorry that we are unable to identify them.

NAMES OF PLANTS.—Correspondents whose queries are unanswered in the present issue are respectfully requested to consult the following number. (Iris).—All forms of the very variable *V. salicifolia*. (A Reader).—1. *Polypodium vulgare*; 2 and 3. *Lastrea spinulosa*; 4 and 5. *Scolopendrium vulgare*. (R. Maitland).—*Leucadendron argenteum*.

Trade Catalogues Received.

Seeds.

R. H. Bath, Limited, The Floral Farms, Wisbech.

T. Davies and Co., Wavertree, Liverpool.

John A. Laing, Seal Chart, Sevenoaks, Kent.

"One and All," 92, Long Acre, London.

W. B. Smale, 31, Fleet St., Torquay.

Stewarts, 6, Melbourne Place, Edinburgh.

Robert Veitch and Son, 54, High St., Exeter.

Henry Eckford, Wem.—Sweet Pea Novelties.

Daniels Bros., Ltd., Norwich.—Illustrated Guide for Amateur Gardeners.

Dervaes Bros., Wetteren, Belgium.—Nursery Stock.

Smith and Simons, 36-38, West George St., Glasgow.—Sweet Peas.

Walford Bros., 6, New Oxford St., London, W.C.—Books on Natural History.



Ladies Only.

We have before us the quarterly volume of the "Studley Agricultural Journal." Where is Studley? may ask one reader, and what work is done there? may ask a second. Not unnatural questions, as this is comparatively a new venture, a college for ladies established by Lady Warwick, the pupils being housed in a beautiful old castle. Not only is agriculture studied, but its twin sister horticulture also; and shall we say bee culture likewise? The agricultural side comprises dairy-work and poultry-keeping, with instructions in book-keeping, and a look in at the marketing department.

On the horticultural side, or rather in connection with it, we find a price list of many most delicious-sounding jams and jellies, and bottled fruit, and also section honey. Butter,

cream, and at least seven cheeses, are offered for sale, together with eggs and poultry; and, of course, here naturally follow fruit and flowers.

Turning on, we find notes on the plays and pastimes of these students. We can well fancy they have found out how to combine work and play judiciously, and that their times must be what a schoolboy would term jolly.

One young lady who signs herself "Long," has a useful paper on book-keeping. Perhaps (dare we say it?), book-keeping forms one of the greatest stumbling-blocks in the career of any business lady. This, partly, we believe, because the subject is not taught early enough, and it is a certain fact that new studies are not so easily grasped when the ideas are not fixed. The solution of figures, which seems to come naturally to a man, will often "floor" the average woman. But we forget: these students are not the average women, or they would hardly be at Studley!

The article on "The Future of the Small Holder" is not signed; but as "good wine needs no bush," it carries conviction with it. We quite believe that the small holder can only hope for any marked success so long as he is part of a whole; that is, as a member of a corporate body who trade together, buying all they want at wholesale prices, and combining together to put on the market only what is of readiest sale. We are, as a rule, far too careless about the quality of the goods we sell, and far too careless as to packing and grading. We noticed this Christmastime a fact that struck us greatly—a beautifully made little box, with lace paper round the edges, packed with Tangerine oranges, first covered with soft paper and then the silver tinfoil—25 for 1s., retail. Now, we own we have had delicious plums to sell, fine, large, and ripe, and most tempting, but all we ever attempted was a leaf or two at bottom, and a leaf or two at top of the basket! Those plums were worth a wrapping of soft paper (separate). They did not get it, and shall we be more careful next season?

For strawberries we certainly have got as far as pound baskets, square, and the result has more than fulfilled our expectations; but this advance took us several years to find out. We always could sell strawberries, but in the pound baskets we can get a better price. The fruit is gathered at once into the basket, and is thus saved from much undesirable handling. But this is a digression.

We fancy these ladies have the female leaning towards horticulture, for more space is taken up with floral notes than is devoted to the farm work. Perhaps this is only so in this particular number.

With their fruits "jammed," these ladies have been most successful getting orders from far and near; and in this branch of business we must say we think they have found their true vocation. As a housewife the old-time lady excelled, and we have yet to find that the modern woman is superior to her grandmother.

Things Canadian.

Now we leave the ladies of Studley, and cross the sea to visit our "Lady of the Snows"—our flourishing Dominion of Canada. Published in Ottawa, we have the report of the Minister of Agriculture for the year ending March, 1907. In any report from our Colonies we always find that the farmers certainly devote a good part of their energies to the production of fruit, as well as to those articles of purely agricultural character. They seem to be ready to take up anything that is likely to pay, possibly because they are not quite so much tied down to old tradition as we on this side of the water.

It certainly looks as if our Canadian friends mean to make dairy work "go," and the Canadian cheese has found its market, and is rapidly rising in favour. This cheese appears to be mostly factory made, and it is consoling to find that great pains are being taken to ensure the use of "sanitary" milk in the manufacture of these cheeses. Someone may carp at the idea of "sanitary milk," but we think the expression is allowable. The Government has led the way in one very important innovation, viz., the establishment of cool curing rooms for cheese. This work has been so satisfactory that the cheese factories, or rather the managers thereof, see that they must include a cooling room as part of their plant. A letter from a large firm of cheese importers in Manchester most emphatically declares in favour of cool-cured cheeses. The farmers of Canada are quite alive to the necessity of "the grading up" of cows. It has taken us a long time to find that out, and they are profiting at our expense. We have shown them the way, and they do not intend to be behindhand.

Next to the dairy report comes fruit. The growers learn not only how to grow and what to grow, but they are taught how to pack; and as a result of the better packing Canadian apples command 2s. to 5s. a barrel higher than the same varieties from other countries. Is not that worth having!

During the hot season iced butter and cheese cars are provided by the railway companies, so that the goods do not deteriorate before they reach the cold storage of the steamships. We can quite understand how, under such satisfactory

conditions, the butter and cheese from Canada must arrive here in top-top perfection.

There is a special Commissioner for Seeds. The idea is the encouragement of the best varieties of seeds, and the encouragement of the grower who takes pains to make his seed bed thoroughly clean. We rather gather, reading between lines, that there has been a tendency to use any sort of seed, presumably often the cheapest.

We did not know before that the Province of Ontario made such a speciality of the cultivation of alsike and red clover seed. The report says: "In average years fully one-half of the red clover seed produced is exported to Europe, and more than that proportion of alsike."

As to live stock, there are national records established in Canada for thoroughbred horses, red-polled and Aberdeen Angus cattle, and most of our principal sheep breeds. Of milking stock we only read of Ayrshire, Jersey, and French Canadian, and Holsteins; surely there must be a Shorthorn society somewhere?

We cannot find a note of the number of experimental farms that are scattered about the Dominion, but they appear to be pretty plentiful; and much testimony is given as to their practical value, and there are also experimental stations for fruit culture.

A useful work is carried on by those who have charge of the poultry divisions of the experimental department. We still have a good deal to learn as to the management of our fowls. We have not yet, after many years' trial, found out quite the right, and therefore best paying, way.

We are glad, at any rate, to learn that "hog fever" ("swine," we suppose) is practically stamped out. It appears that there has been a little friction on the part of cattle owners against compulsory dipping for mange. The order was suspended, and with the cold weather there was recrudescence of the complaint, inasmuch that the chief opponents of the order are certainly in favour of its restoration. With a disease of this kind so prevalent, and so difficult of eradication, we think our Government do well when they remain firm on the question of the importation of store animals from Canada. We have plenty of our own dirty diseases without wishing to cultivate a new and not pleasing variety. Tuberculosis appears to baffle our friends as much as it does ourselves, and we suppose it is a complaint that, like the poor, will ever be with us. We have only just given a bare outline of the book before us. There is much valuable information on other subjects, which is perhaps of too technical a character for the ordinary reader. Everything points to progress, and we have great reason to be proud of our possession of the fair Dominion.

Vinton's Diary.

For handiness and usefulness we must commend "Vinton's Agricultural Almanac and Diary." Is. Where else could be found such a mass of useful and necessary information, combined with a really useably-sized diary? Not just room for the notice of a single event, but a space that is available for quite a big day's doings.

Work on the Home Farm.

Although we read in the papers that frost and snow prevail in other districts, we have little of either one or the other. We have had a fine week, and the land has dried nicely. Strong winds, which seemed to have snow behind them, but did not bring it, have been active agents in the drying process. The sun was too much obscured by clouds to help much, but we hope that when he gets into better position in February there will be no intervening clouds, and he will shine to better purpose.

We are much surprised at the way the land is drying after being in such a hopeless state. It is evident that the subsoil has not been so full of water as we thought, and a cellar which had 12in of water in it a fortnight ago, being now dry, provides evidence that the springs are not yet overdone with supplies.

Ploughing is going really well; last week it was done under difficulties. To-day the wings are almost as clean as we could wish them to be.

We have been fetching some hedge stakes from a neighbouring estate, as we required a large supply. They are very little better than thatch pegs, and of little use except as firewood. Much of the timber which merchants buy or almost beg at estate timber sales would provide splendid rails, palings, stakes, as well as good boards for other purposes if sawn up, but we let the best wood go away, and farmers are not alive to the necessity of combining to buy good stuff, and sawing it up for any purpose for which they may require it.

The weather is better for threshing, but very little is being done. We suspect that wet roofs are the chief reason for this shyness on the part of farmers. There is a poor demand for clover and hay, and we seldom see a waggon on the road loaded with either hay, corn, or potatoes. Potatoes are being held very strongly, and it will be surprising if high prices do not rule before June. Very little frost would be needed to send potatoes up to £8 per ton.

Seeds

DOES IT OCCUR TO YOU

that in the business of supplying seeds for the garden just as much as in any and every other business there are various qualities, both of the seeds themselves and of the strains from which they have been harvested. The quality of the seeds—in other words, the germinating power—can be ascertained readily if deemed necessary, but not so the quality of the strain from which they have been harvested. For this there is no alternative but to wait until the crop reaches maturity, and what if should evolve vegetables small, of poor flavour, and generally indifferent, and flowers of poor, maybe mixed colours, puny in size, and of no form? And alas! a year wasted, never to be recovered. This, time and again, must have been the experience of many growers who before purchasing have never given thought to the qualities, who because they have not been able to see any difference in seeds have taken it for granted there is but one quality, and that prices other than those they have paid are merely fancy ones. It is well said one learns by experience, but why waste time learning by experience when we, with a vast experience, the accumulation of a lifetime, and a high reputation to maintain, MUST and DO supply seeds of the highest standard, seeds saved from selected plants of the character finest to each variety. If YOU are a buyer of the best seeds, we will send you our catalogue without charge and post free.

DICKSON & ROBINSON

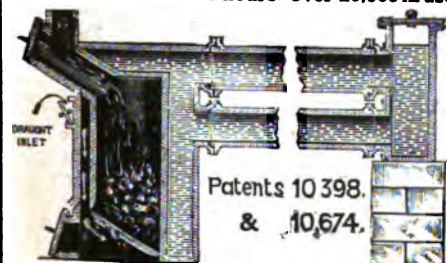
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ROSES IN POTS.

OUR plants were awarded the Silver-Gilt Cup (value 55 guineas) as the most meritorious exhibit at the great Temple Show, 1904; also Gold Medals 1906 and 1907.

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Journal of Horticulture.

THURSDAY, JANUARY 16, 1908.

Silver Leaf.



HE season 1907 had a marked effect on trees affected in 1906 and seasons previously, with silver leaf (*Stereum purpureum*). These examples, which I have had under close observation for several years, may be referred to as interesting, and possibly instructing, if there be anything in experience.

The first examples are a number of Plum trees, possibly from stones, or at least young plants set some years ago alongside of two walls forming the sides of a cottage front garden, and which I have referred to before in the *Journal of Horticulture* as bearing on their stems a plentiful outcrop of the ascophores of *Stereum purpureum*. The greater part of these were cut down to near the ground in the winter of 1906, but some of the trees were left relatively scatheless, only the parts bearing the fungus outgrowths being cut off. I know nothing as by whose directions this was done, but it was evidently the result of the reference made by me to the trees in these pages.

Lookers-on generally see most, or, in sporting language, have the "best of the game," and in 1907 I noticed that the growths of these plants were remarkably green in the leaves, not many having the silvery appearance, as was the case with those of the preceding summer. The fungus is still there, bearing its fruits and dispersing its spores, and yet the trees, or some of them, not all, live on. There was nothing different in the conditions, only the rainfall was heavier, or rather the atmospheric conditions moister and duller in 1907 than in 1906. Was the greater moisture the cause of a more plentiful source of nitrogen, supplying nitric acid or nitrates, in 1907 than in 1906? This question can only be satisfactorily answered by analyses of the green and of the silver leaves, which, of course, may only be undertaken by those well skilled in chemical science.

READERS are requested to send notices of Gardening Appointments or Notes of Horticultural Interest, intimations of Meetings, Queries and all Articles for Publication, officially to "THE EDITOR," at 12, Mitre Court Chambers, Fleet Street, London, E.C., and to no other person and to no other address.

NO. 1438.—VOL. LVI. THIRD SERIES.

The second example, to which I may refer, is that of an Almond tree, a sheet of silver foliage in 1906 and several years previously, and not bearing any or very few fruits, certainly not any in 1906. The leaves in that year were very narrow, curling inwards in late summer, and falling off early in autumn. There was no fungus outgrowths on the stem or branches, only a little gumming of a small branch here and there in the lower limbs. In 1907 the tree bore a plentiful crop of fruit, the stones of which were relatively thin and easily opened, and the kernels sound, sweet, palatable, and digestible, as evidenced by the eagerness of a youth who was seen eating them upon several Sundays in succession. There was not one discoverable silver leaf on this tree in 1907. The leaves were normal in size with other trees of the same variety not many yards distant as regards the flight of fungus spores, yet they were in a more vigorous condition in the matter of young wood, and also as regards the tendency to gumming. But the trees, even more feeble in growth than the silver leaf example, had all along been gummed, and yet the leaves, though paler in colour than the trees in vigorous growth and leafage, were not in any year affected by silver leaf. Was the silver leaf example suffering from a lack of nitrogen? In 1907 there would be more derived from the soil or atmosphere through the greater solubility of the inorganic elements, and these, acting on the organic, would afford a greater supply of nitrates to the trees through the roots, while some nitrogen may possibly have been derived from the atmosphere.

I am aware that a correspondent some time back referred to this matter in the *Journal of Horticulture* in connection with silver leaf in Plum trees, affirming that infection by aphides might, to some extent, account for the lack of green, the aphides sucking out the juices of the leaves, impairing the cells, and possibly depriving them of the chlorophyll granules to a greater or less extent. Has this correspondent any further experience on this point? Is there any difference between keeping the leafage free from aphides in the early stages of growth, and when there has been infection? Or better, has the silver leaf tree from which aphides are absent, been restored to normality or green foliage by a top-dressing of nitrogenous fertiliser in the winter or early spring, following the affection of silver leaf?

The third example is that of a Plum tree, a standard of about 15ft in height, wholly "silvered" in 1906 and fruitless in that year. In 1907 this tree bore a splendid crop of Plums, perfect in colour and finish. The growth was free, and the foliage deep green in colour, not any trace of silver leaf being present in any part of the tree.

A fourth case was that of a Plum tree, evidently a dwarf trained at some time, and overtopped the wall, there forming a branching head as much above as the wall is in height. For several years the trees bore silver leaf, very pronounced in 1906, and in 1907 its leaves were deep green.

The fifth instance, noted in 1907, was Cherry trees, the tips of their young growth converted into miniature blackened and dried-up mops by infection of aphides, and the leaves below were all green, barring the overcoat of black fungus that had feasted and fattened on the honeydew, or secretions of the aphides. These trees in 1906 had silver leaf.

My sixth example is that of bush Apple trees, not a few with white twigs due to mildew; but the others that had silver leaf in 1906 were normally green in 1907. Later on in the season of 1907, some of the leaves on the deepest green leaved shoots turned brown, and shrivelled up as if scorched by fire, and this has been attributed to a species of *Septoria*, but I have not yet seen the "fruits."

Lastly, silver leaf in Portugal Laurels runs its course. Pale yellowish spots first appear on the leaves; they thicken slightly, become silvery all over, a few twigs being affected at first. This spreads year by year until the whole plant becomes involved, and this dies branch by branch, and from above downward, the whole collapse, even the roots. The microscope brings nothing into view, and the dead stump produces only saprophytes that may be found on almost any dead wood left on the ground.—G. ABBEY.

It must be very satisfactory to the loyal officers of the Royal Caledonian Horticultural Society, whose headquarters are in Edinburgh, to be able to record a profit of £93 from last year.

The total funds are now £1,152. Particularly must it be gratifying to Mr. P. Murray Thomson, the secretary. The annual report, presented at the meeting on Wednesday, the 8th inst., had one feature, however, that modifies our feeling of elation. It does not refer to the position or progress of the society, which is so thoroughly excellent, but to the retirement from the secretaryship of him whom we have named. "Mr. Murray Thomson's departure from Edinburgh," writes our correspondent there, "is much regretted by all who know him. His energy has never flagged, and his enthusiasm in all things connected with horticulture has oftentimes infused a new spirit into some whose interest seemed to wane, and one effect of this has been that the Royal Caledonian Horticultural Society, after

several years of decreasing funds, has taken a new lease of life, and the funds again are equal, or nearly so, to its best records. Mr. Murray Thomson has accepted an appointment as estate agent to Mr. Parkin-Moore, Whitehall, Mealsgate, Cumberland, and we are sure he carries the best wishes of many friends all over the kingdom." Yes, Mr. Thomson has won the friendship and esteem of a wide circle, and we are glad to know that his interest and help will still, to some extent, be at the service of the society. Owing to the opening of the Scottish National Exhibition in Edinburgh in May the council have resolved to revert this year to April as the month for holding the spring show, which would take place on the 15th and 16th of that month. Mr. Donald Mackenzie, of Messrs. Henderson and Mackenzie, S.S.C., Rutland Square, Edinburgh, was introduced as the new secretary.

Although the aim of the landscape gardener is in all cases to beautify and improve the aspect of the area upon which he operates, there exists in the work such unbounded scope for the exercise of individual taste that expert opinions are often divergent. There are some extremists to-day, as in the past, who see perfection only in geometrical designs, trimmed shrubs and splashing fountains. Others, again, find no beauty in any scheme which does not involve an entirely natural disposition of the plants employed, and who, like a well-known writer on park and garden landscapes, rail at the "presumption and bad taste founded upon ignorance of what a true garden ought to be," that introduces "any feature which, unlike the materials of our World-designer, never changes."

Those whose broadness of view prompts them to make statements of the character we have quoted, seem to come perilously near a species of mannerism which in others they so vehemently condemn. It is quite possible to cherish a frantic love of the natural until it assumes absolute intolerance of perfectly legitimate gardenesque and geometrical styles. An attitude of this kind is as bad as, or even worse than, the other extreme. Would it not, indeed, seem barbarous to bury the noble pillars and sculptured stonework of some triumph of architecture within a grove of natural scenery, studiously avoiding any attempt to make, in the ground adjacent, a harmonious setting for the building? Shapely flower beds, gravelled walks and smoothly mown lawns provide the only appropriate forefront for the rigid outlines of squared stone and symmetrical turrets and arches. They are the sole means by which the designer may shade off obvious and acknowledged art into art-disguised as Nature. Putting utility and convenience entirely aside, to bring high art and natural arrangements abruptly face to face is certainly not concomitant with the best technical conception.

Granted, then, that a certain conformity with the lines and curves of the architectural structure is imperative in its immediate vicinity, the more distant parts of the grounds are, of course, hampered by no such restrictions. On the contrary, the "wild" gardens and "thorneries" that are so popular to-day, are amongst the most interesting and effective features of many well-kept gardens. Yet, in this regard, it is necessary to exercise some judgment to obtain the best results. The natural contour of the ground should be taken into consideration. Given an undulating hillside with a gentle gradient, or land otherwise presenting a suitable surface for a natural scheme for planting, and the "wild" garden is *par excellence*. Should the space at command, however, be more or less flat and monotonous, no amount of making up will ever supply the beauty of outline which Nature has denied it. It is well, therefore, to consider whether the "wild" type of planting is the most appropriate in such instances.

Although we have no desire to advocate a return to the old-time clipped Yews and fancifully shaped shrubs, there is, we think, a growing tendency to reject anything approaching formality in pleasure grounds which is scarcely reasonable. On a level sward unadapted for naturalising plants there is a peculiar fitness, in many instances, in the judicious introduction of evergreen hedges and screens. A grass walk sheltered from cold wind by a hedge of Yew, and leading to a rockery dell or Rose temple may often be made a feature, and we know of a Rose garden a portion of which is partitioned off with sweeping arcs of embattled Yew hedges on either side. The pleasing effect is heightened by a lengthy approach through a Rose bower which intersects the evergreen screen in the centre. A nicely kept hedge of Yew or Box makes a fine enclosure for a bowling green or tennis court, besides adding an old-world charm. Escallonia hedges are often seen near the coast in such positions, and prove an effective shelter from the wind, and a screen from the curious.

In these days of climbing Roses and the like, it is somewhat remarkable that trellised hedges and rustic pergolas are not more in evidence in our gardens. Where "wild" gardening is unsuitable and severe horticultural geometry is unnecessary, such ideas would appear to present that medium stage which, while verging on both styles, would incline to neither sufficiently to offend the critical eye.

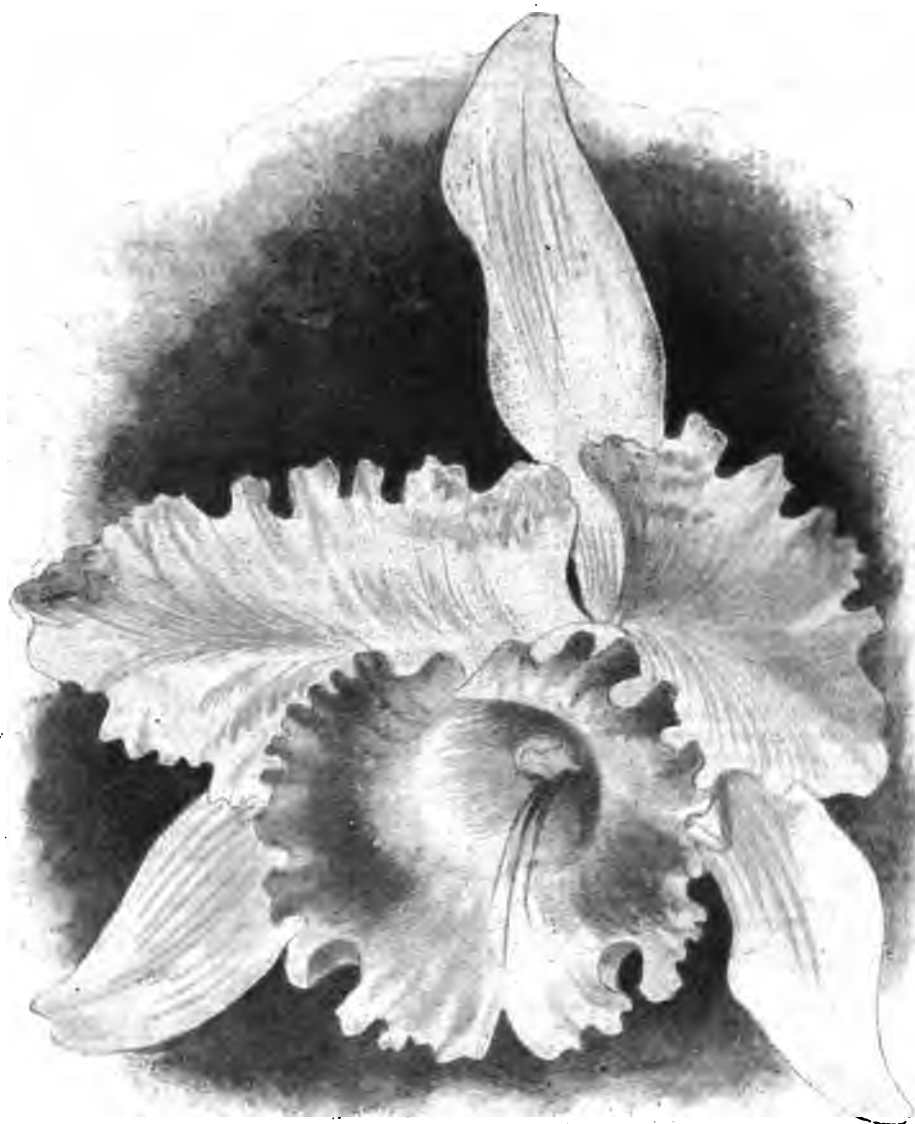


Laelio-cattleya × Fascinator.

This lovely hybrid was raised by Messrs. Charlesworth, of Heaton, Bradford, and was awarded the highest honours. It is usually seen at its best at the Temple Show at the end of May and in June. The lip is particularly fine, being of beautifully rounded, tubular form, very smooth, and prettily coloured, the shades being rosy-buff, the throat yellow, and the edges purplish. The sepals and petals are deep rose. This hybrid is now frequently to be seen in excellent condition at the early

found upon newly imported plants, and these are the media through which it is introduced to collections. *Cattleya Mendeli* is one of the worst affected, but other *Cattleyas*, such as *labiata* and *Triane*, must also be closely examined directly they are received; while *Laelias* are not exempt from attack. It will be noticed that the eyes or growing points begin to swell more quickly than they should. When this phenomenon is observed the eye should be removed, cut longitudinally, and be minutely examined with an ordinary pocket lens or under a microscope. It will probably contain a white larva, with slightly darker head, which proves that the fly is present. If, however, tiny holes are seen around the eye it denotes that the enemy has escaped and commenced its destructive work among other plants. No one of my acquaintance has ever seen it flying about the houses, even where several plants have been badly infested.

From the foregoing remarks the importance of carefully overhauling freshly imported *Cattleyas* will at once be apparent. They ought to be thoroughly cleansed, fumigated, and kept by



Laelio-cattleya × Fascinator.

summer shows, and is quite one of the best of the *Laelio-cattleyas*. There are several forms of it, but all claim *Cattleya Schröderæ caerulea* and *Laelia purpurata* as the parents.

The Cattleya Fly, *Isosma orchidearum*.

Growers who have not yet made the acquaintance of this injurious pest may congratulate themselves; but judging from several inquiries made from different sources it is suspected of being present, because a few of the "eyes" are larger than usual. However, I would point out at once that abnormal growth is not always caused by the *Cattleya* fly. The question often asked is, How can I detect its presence? It is generally

themselves till growth is well advanced. It is fortunate we can locate its presence in the larval stage, or it might prove more troublesome.

Many suggestions have been put forward for its extermination, including (1) a low temperature; (2) allowing the sphagnum to grow up around the lead; (3) moist surroundings; and (4) fumigation; but while the latter would undoubtedly kill the fully-grown insect, the methods are absolutely useless when the fly is still in the growth.

Directly it is ascertained that a plant or plants are affected to a great extent, then the only safe course is to burn them at once; but if the enlarged eyes are not numerous they might

be out away, and the house fumigated with XL All every other night, thus preventing those that escape from doing more mischief by penetrating other dormant growth, where they deposit their eggs, which means they increase.

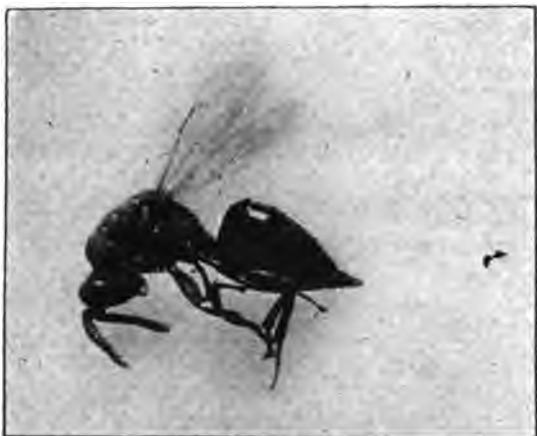
Every attention ought now to be paid to this subject, for the present is a good time, because the majority are in the pupal stage, and are almost ready to emerge. I would mention that no orchidist should be alarmed by the above notes, as no plants (excepting when it has got a strong footing) need be lost if strict measures are taken whenever this pest is present.

THRIPS.

During the last fortnight or so more fire heat has been necessary to keep up the temperatures, thereby causing a somewhat drier atmosphere, which is conducive to the breeding of thrips. It is advisable to fumigate the plants on alternate weeks, and prevent its appearance.—T. ANSTRUP.

A Fine Exhibition in Manchester.

The orchid show at the Coal Exchange, Manchester, on Thursday, January 9, was quite as good as most of its predecessors. Sixteen groups of plants were exhibited, Cypripediums making the greatest bulk. That which was possibly the finest group was from Mr. H. J. Bromilow, of Rainhill, Liverpool, who was awarded a silver-gilt medal in the competition for the Saunders cup. Cyp. Lord Ossulston, a very choice hybrid, and the Cyp. Venus, a cream-coloured flower, finely spotted with crimson,



By courtesy of "The Orchid Review."

Cattlea Fly.

The black speck on right shows fly nearly natural size; the larger figure is magnified 10 diameters.

were very fine. Mr. J. Macartney, of Bolton, who also got a silver medal for Cypripediums, showed some very pretty Odontoglossums and Cymbidiums. Messrs. Cyphers and Messrs. Heath and Sons, both of Cheltenham, were also among the exhibitors. The first-named showed a striking example of Mr. Chamberlain's variety of *Laelia anceps*, a fine bold flower with amethyst lips and mauve sepals and petals. Messrs. Heath had some very good Cyp. *insigne* *Leeanum*, with an especially beautiful scarlet *Sophranitis grandiflora*. Mr. Richard Ashworth, of Newchurch, was also among the silver medalists, that distinction being gained for him by a group of valuable varieties of *Odontoglossum*. A finely red-brown spotted *Odon. crispum* made the centrepiece, and contrasted well with a nearly white plant of the common type. Mr. Z. A. Ward, of Northenden, won a silver-gilt medal for an unusually well grown and flowered collection of *Odontoglossums* and *Cypripediums*, chief among them being the *Odont. Lambeauianum*, variety *Jasper*, and a Cyp. *Leeanum*, variety *Clinkaberryanum*. There were many other fine exhibits, including that of Messrs. Bolton, of Warrington, who showed a dozen finely-developed plants in various sections; that of Mr. G. E. Shorland Ball, of Burton, Westmorland; and that of Mr. A. Warburton, Haslingden, whose collection is one of the finest in the North of England.

Chair of Forestry at Cambridge.

Mr. Augustine Henry, M.A., F.L.S., a native of Derry, in Ireland, who is well known to our readers, has been appointed Reader in Forestry to the University of Cambridge, and we wish him every success in his new post. Mr. Henry studied with great credit for two years at the Nancy Forest School; he has travelled much and has seen, besides most British woodlands, the forests of China, Japan, North America, France, Spain, Corsica, and Algeria. He is also a most experienced and accurate botanist, being associated with Mr. H. J. Elwes, F.R.S., in the authorship of "The Trees of Great Britain and Ireland."

NOTES & NOTICES

Gardeners' Royal Benevolent Institution.

The annual friendly supper of the friends of this institution will be held at "Simpson's," 101, Strand, London, at six o'clock on Thursday, January 23. Martin H. Foquet Sutton, Esq., will preside.

Best American Chrysanthemums.

To give an idea of what varieties of Chrysanthemums were in vogue last year, it might be well to mention the varieties seen in the largest numbers in the American markets. These were as follows: White—Polly Rose, Clementine Touset, Mrs. Henry Robinson, Timothy Eaton, Alice Byron, Ivory, and Beatrice May. Pink—Glory of the Pacific, Dr. Englehard, William Duckman, Lady Harriott, Maud Dean, and Pink Ivory. Yellow—Monrovia, Merstham Yellow, Robert Halliday, Major Bonnaffon, October Sunshine, Henry Hurrell, Cheltoni, and Goldmine. Red—Intensity and John Shrimpton. Bronze—Kate Broomhead and Rustique.

Forestry Education.

Afforestation has been so much discussed of late that a wide measure of public interest will attach to a scheme of forestry instruction just initiated jointly by the Lorn District Committee of the Argyll County Council, the West of Scotland Agricultural College of Glasgow, and a group of landowners, including Lord Strathcona of Glencoe, Mr. Nelson of Achmacloch, Mr. Macalpine Downie of Appin, and Mr. Macdonald of Dunach. A limited number of students are to spend six months at Glasgow, where they will undergo a forestry course at the College, and then put in eighteen months on the estates, performing the practical duties of a working forester, and attending local lectures and examinations.

Dunfermline Horticultural Society.

The annual general meeting of the above society was held in St. Margaret's Hall, Dunfermline, on Saturday, the 28th ult., Mr. James Dunagan, president in the chair. The treasurer's report, which was adopted, gave the ordinary income at £274 12s. 10d., which, with £151 0s. 10d., the grant from the Carnegie Dunfermline Trust, balanced the expenditure for the year. Exclusive of the Rose show, the prize money awarded amounted to upwards of £146. The following office bearers for 1908 were appointed: Hon. president, the Earl of Elgin; president, Mr. James Dunagan, superintendent of Pittencrieff Park; vice president, Mr. J. E. M'Killop; secretary, Mr. John Hynd; treasurer, Mr. Thomas Kilgour; garden visiting committee, Mr. A. Allan and Mr. S. Bigham. A committee of thirty-six members was also elected.

Schools of Agriculture and Horticulture.

The Board of Agriculture has lately published a leaflet (No. 197) setting forth the existing arrangements in England and Wales for affording instruction in agriculture, horticulture, and forestry. There are more colleges and schools at which these subjects are specially taught (observes "The Field") than we were aware of. We are informed that the county councils expend between £80,000 and £90,000 annually in aid of this kind of education, whilst the Board of Agriculture distributes in grants to educational institutions that make provision for instruction in agriculture, &c., about £10,000 a year. Nine of these are collegiate centres in different parts of the country. Horticulture is included in the courses at such establishments as Reading College, Chelmsford, Uckfield, Wye, and Holmes Chapel, forestry being taught in the colleges of Bangor, Oxford, Cambridge, Newcastle-on-Tyne, Cirencester, Alice Holt Woods, and the Forest of Dean. Particulars of fees, cost of living, &c., for students are given. The Royal Horticultural Society's garden at Wisley is used as a school of horticulture, but it is not mentioned in this leaflet; nor is there any mention of Kew, which used to be held up as the principal school of horticulture in the country.

Shrewsbury Show.

Already the schedule of prizes for the great fête on August 19 and 20 at Shrewsbury, has been issued by the Shropshire Horticultural Society. Twelve hundred pounds (£1,200) are offered in cash prizes, with silver challenge vase for fruit display (value 25 guineas), silver cups, golden and silver medals, and other valuable prizes. The chief awards would seem to be, this year, in class 80 for a champion decorated fruit display of thirty dishes. £20 and the silver cup, however, are still offered for twelve bunches of Grapes. The honorary secretaries are Messrs. Adnitt and Naunton, Shrewsbury.

Kew Gardeners' Social Evening.

On Friday, January 10, the young men employed in the Royal Gardens, Kew, held their eleventh annual "Social," in the Boat House, when upwards of 130 were present. The room was prettily decorated with festoons of evergreen, fairy lamps, and palms, while the refreshment tables were nicely set out with Primulas and other small plants. Dancing occupied the greater portion of the evening, which commenced at 7.30 p.m. till 2 a.m. Several of the Kew "boys" bemoaned the fact that no Leap Year dance was included in the programme! Mr. Tunnington again acted as hon. secretary, and Mr. Adamson ably carried out the duties of M.C.

Deaths by Fire.

A correspondent writes: "I have just had a letter from a friend in Dreer's, Philadelphia, in which he says, 'I suppose you receive from time to time copies of the American trade horticultural papers, in which case you will see a full account of the death by fire, which destroyed his home on the night of December 26, of my brother John, his wife and three children. It was a terrible tragedy and has upset my father and the rest of us very much.' The father, John Clark, was at one time gardener at Parson's Green, Edinburgh, afterwards at Dysart House, Fife, and latterly at Wemyss Castle, Fife. He went to America, and is now assistant to Mr. Smith in the Washington Botanic Garden. The young fellow, John Clark, who was burnt to death, I think began his connection with the seed trade with Edward Sang and Sons, nurserymen, Kirkcaldy."

"The Daily Mail Year Book"

This "handbook to all the questions of the day" quite deserves all the praise and recommendation that its publishers award it. No better sixpennyworth of its kind is obtainable, and really a marvellous amount of information in condensed yet satisfactory form is included within its covers. The close-printed index alone extends over seven pages, and to glance through it gives one the impression of reviewing an encyclopædia rather than a little year book. There are eleven sections, as—Questions of the day, page 9-62; socialism, 63-77; travel and traffic, 78-106; Parliament and politics, 109-121; personal, 122-176; the Empire, 177-199; foreign affairs, 200-213; 250-258; naval and military, 259-268. Though there appears to be no direct allusion to horticulture, pomology, or floriculture in the book, there are about one dozen entries under agriculture. As a handbook for reference this work proves invaluable. This is the eighth year of issue.

Manchester Botanical Garden.

The "White City" Company, who offered £2,000 per year rent for the gardens of the Manchester Royal Botanical Society, have "come to grief . . . through having started a large business with too little capital"; but Mr. John Edward Lees, a gentleman of considerable means, thinks that a success can yet be guaranteed. He asks for the option of renting the gardens for a term of twenty years, determinable by the tenant at the end of five, ten, or fifteen years, and the rent is £2,000 a year for the first ten years, and £2,200 for the remainder of the term; £500 deposit had been paid on the agreement. It was proposed to form a company to carry on a similar undertaking to that conducted at the gardens by the White City Company last summer. The horticultural shows would be the same as they had always been, and the shareholders in the Botanical Society would continue to enjoy the privileges they had always had. The resolution to accept Mr. Lees' offer was then put to the meeting and carried.

Weather in Perthshire.

Since the intense frost that marked the second and third days of the year, reaching 16deg, there has been a course of varied weather. Frost of from 6deg to 11deg was registered on the 9th and 10th, followed by thaw and boisterous southerly wind. Sunday was fine, and the evening bright and frosty, 9deg of frost occurring during the night, but Monday was cold and dull, threatening either a thaw or a fall of snow.—B. D., S. Perthshire.

Wheat Cultivation.

How to increase the yield of Wheat per acre and to make more profit from the crop was discussed at the seventh International Congress, and the following recommendations were agreed to:—1. The cultivation of more prolific varieties, and in districts especially favoured by climatic and suitable conditions. 2. More careful selection of the seed, and the choice of the best local variety in localities where improved breeds are not found suitable. 3. A better system of soil cultivation and more complete destruction of weeds and parasites. More careful treatment of farmyard manure in order to prevent loss and waste of nitrogen in it. Extended employment of green-manuring with leguminous crops.

4,000,000 Christmas Trees a Year.

A New York newspaper representative interviewed Mr. Gifford Pinchot, the United States Forester, about the Christmas tree question. "I have thought a good deal about this Christmas tree matter," said the Chief Forester, "and have finally reached the conclusion that trees are for use. There is no other use to which these trees could be put which would contribute so much to the happiness and good of mankind as their use for the children and families on Christmas Day. So far as endangering the future life of our forests is concerned the effect is infinitesimal compared with the destruction caused by forest fires and wasteful lumbering. It is estimated that 4,000,000 Christmas trees are used in this country each year, one in every fourth family. If planted 4ft apart these would be grown on less than 1,400 acres, a good size farm. You see, the amount is utterly insignificant when compared to the other great drains on the forests."

"The Clerk."

Just at a time when the gardeners of Great Britain and Ireland are confederating, and following the publication of the "Journal of the British Gardeners' Association," comes the first issue of "The Clerk," the organ of the National Union of Clerks. "Our general aim," says the editor, "is to raise the standard of British life by raising that of one of the largest sections of the population. It is estimated that in England there are considerably over half a million clerks. This being so, a National Union should in the course of time be easily able to enrol as members at least 200,000 men and women in this profession. We believe that one branch or another of it contains some of the ablest men and women in the country, and the organisation of such a body on a democratic basis ought to be able to wield a most powerful influence for good in the life of Greater Britain."

Royal Caledonian Horticultural Society.

The annual statement of accounts of this society for the year ending November 30, 1907, has been issued to the members. The accounts are satisfactory, showing an excess of income for the year of £78 4s. 7d., and a total increase of funds of £93 12s. 1d. The total funds in hand on November 30 amounted to £1,152 1s. 10d. The Neill Prize Fund shows a capital account amounting to £450 and a revenue of £22 16s. The usual auditor's certificate is appended, in which, by the way, the auditor remarks that the £400 Clyde Navigation Fund Debt investment is not a trust investment. The details of the accounts appear to be satisfactory, as due depreciation has been allowed for tables and other properties. An investment of £350 Metropolitan Railway Company 6 per cent. Debenture Stock is, however, taken at cost (£657 18s. 9d.), which is considerably above the present market price. The council recommend the election of the following to fill up the usual vacancies in their number: President, Lord Balfour of Burleigh; vice-president, Mr. J. W. M'Hattie; councillors, Messrs. J. Alexander (Niddrie), D. W. Thomson (nurseryman), and G. Caldwell (Duddingston Cottage).

Mr. Thomas Tonge.

To-day we publish a portrait of a *Journal* contributor who left the Manchester district (England) for Colorado, U.S.A., in 1883. Mr. Tonge occasionally sends us articles on aspects of the fruit industries of Colorado, and we have briefly reviewed his recently-published "Hand Book of Colorado Resources" in the present issue. Mr. Tonge writes:—"My father, Joseph Tonge, was the most successful amateur gardener at or around Styal, Cheshire, about ten miles south of Manchester. He was an adept at, and authority on, striking, grafting, budding, pruning, &c., understanding the theory, and with intelligent, matured experience of correct practice. He grew nothing for sale; fruit and vegetables simply for home consumption; the flowers for pleasure and to give to his friends. His gardening was his recreation after working hours. He was an ardent Rose grower, and I never see in a list to-day the time-honoured names of Gloire de Dijon, Souvenir de la Malmaison, John Hopper, Général Jacqueminot, and many other old favourites without also seeing in my mind's eye the magnificent representatives of those varieties that he grew. He went on the principle that he had neither the space or the time to grow

**Mr. Thomas Tonge.**

anything inferior. He grew only the best varieties, gave them the best of care and with the best results. My horticultural tastes and interests come from heredity and early environment. For several years before coming to Denver in 1883, while a resident of Manchester, I was the secretary of the Styal Horticultural Show, which has been held annually for, I should think, more than fifty years. Since coming to Denver I have kept close track of, and by my journalistic work have contributed somewhat to, the wonderful development of horticulture and floriculture in this State, in which industries there are a number of Englishmen. I am expecting next spring to build a suburban home in this city, with ample surrounding ground, which will in time be embellished with the special varieties of flowers and fruits that distinguished that typical English garden of my youth." Besides his journalistic connections, Mr. Tonge is also in business as a publisher in Denver.

New Zealand and Consumptives.

The High Commissioner for New Zealand desires to direct special attention to the fact that persons suffering from consumption and unable to provide for their maintenance inside a sanatorium, cannot be allowed to land in New Zealand. Indigent sufferers are required to return by the next boat leaving after their arrival, and it is therefore specially important that consumptive patients of that class should be warned not to go to New Zealand.

Rockwork and Rock Plants.—III.*(Continued from page 556, December 12th.)*

The first thing to impress on the mind in respect of rockwork is the necessity of boldness, roughness, extent, for the idea of rocks which a person can see over, and almost stride over (and this may be seen in urban and suburban gardens) are the height of absurdity. For a rock to appear noble a person of taste must look up at it, otherwise he or she will "look down on it." But, it may be urged, rockwork may be made of any size, from a barrowful of stones thrown down on a heap, to the rock towering up to a height of 20ft or more. True, a rock as before mentioned may be made of two clinkers, burrs, or pieces of tufa, and will answer to hold earth to nourish a plant as well as if they were heaped mountains high, yet this is in relation to adaptation of rockwork to the growth of plants, and not in reference to landscape gardening. In the latter, the rockwork should be bold, high, and extensive. Yet it must be observed that rockwork is one of those features which are not necessarily part of a landscape garden, and unless very judiciously managed and of a respectable extent and elevation, is far better omitted.

The temptations to introduce rockwork are, first, the presence of abundance of appropriate material, which would be in the way if not so appropriated; second, the presence of water, which is one of the most appropriate adjuncts; thirdly, portions of high broken mounds, easily convertible to rocks so far as the surface is concerned; fourthly, the presence of excavations of any kind not easily otherwise treated, nor without immense labour filled up; lastly, the presence of a ravine, which is to be retained.

Any or all of these circumstances naturally tempt the introduction of rockwork, and in constructing this the points to avoid are, first, diminutiveness, than which nothing is so destructive to harmony; second, smoothness, which detracts from the grandeur, if not absolutely from the natural appearance of rock; thirdly, choosing a bad place; and, fourthly, not attending to the surrounding or adjacent scenery.

For example, a rock built up in the middle of a lawn would look exceedingly ridiculous alone, and even rocky scenery on the margin of lake in a flat and rockless district would be perfectly unnatural and out of place, while if the ground rises abruptly at the "head" or at the "feet" of the lake, rockwork may be introduced with advantage, and if the flow of water admit, take the opportunity to make the most of circumstances by waterfall construction.

If, on the other hand, the ground rises gradually at the "head" and there be a feeding stream, the outer surface may be made very attractive by very large fragments of stone or boulders, so disposed as to form a rugged face, some being placed at the sides and others in the stream so as to crop out from the water, making it ripple and bound past just as may be seen in a glen worn out by water passage from time untold. At the exit of the water from the lake, and passing into a ravine, a waterfall may be appropriate, while the stream itself is made to show rock debris, boulders or masses of rock worn round in edge, moss covered, and of varied size. Above all things, remember that the rocks in Nature are either limestone, or granite, or quartz, sandstone, conglomerate, or some other distinct material, and their fragments are all of the like character.

In the construction of rockwork it is not, however, necessary to pile up rocks on rocks as they may be seen in the grand scenes of Nature. All attempts in this direction only serve to convince one how insignificant is the effort of man to imitate them, but from natural assemblages of rocky materials on a relatively small scale useful hints may be derived, and particularly from such as are intermixed with vegetation. In the Isle of Wight, in Wales and Scotland, as well as in Derbyshire, Devonshire, and Westmorland, and many other hill and ravine districts, are found fine specimens of inland rocks of all sizes, and fragments of rock on one another.

The good rock garden example exists in North Yorkshire, and is situated in a glen. The face of the rock was evidently torn away by landslide at some remote period, masses having slipped away from the main rock and grouped themselves down the slopes, so that hillocks and hollows succeed each other in endless confusion, and portions of rock protrude as rock masses or boulders, weathered more or less so as to be rounded. The edges and points are worn off by the action of the weather, aided by lichens and mosses. The general principle is that of a large watershed above, really a moor, with the water collected into a hollow, also above, but now dry land, and the overflow from this diluvial lake scouring its way through the barrier of debris and rock that prevented its passage to the sea, about two miles distant as the crow flies. How long a time the water took to cut its way through the rock and form a channel between the two walls of rock masses must be left to the geologist, but in 1871 this rock was passing still from rock into what we term soil, slowly but surely crumbling away.

The rent worn in the rock is only about 8ft wide, and the

water passes over a shale-like floor (rock in thin layers) indicating that the deepening of the chasm is still proceeding, yet not particularly noticeable to eye of man, only after a time of severe frost and the torrent been in flood through the rapid thawing of a deep snow on the moorland it is seen that the water bed has been broken up, deepened, and the rock fragments carried away. At the entrance of the water-cut channel the rock on both sides may be 12ft high, wall-like, and being overshadowed by Hazel bushes is gloomy; but to see a dipper dive beneath its water, or a kingfisher dart through the opening, and withal dishwashers wagging their tails in the rock masses that have been toppled into the stream, or found lodgments on the slopes, soon awakens and keeps alive interest, for the rocks and the slopes are clothed in Nature's greenery.

The walls of the chasm are bedecked with Hart's-tongue (*Scolopendrium vulgare*) gracefully arching over and above the water. Some half dozen varieties have originated. On the deep rock face, some 20ft high, the Hart's-tongues have tried and failed to secure a hold, common Polypody (*Polypodium vulgare*) having secured lodgment, along with some Shield ferns (*Polystichum*); and at the foot Buckler ferns (*Lastrea*) become predominant, while lower, Male ferns (*L. Filix-mas*), Buckler ferns (*L. dilata*), and Lady ferns (*Athyrium Filix-femina*), luxuriate and almost always in colonies of one species or its forms. On the slopes there are sheets of Harebells, Wood Anemones, Dog Violets, and Primroses in season. Forget-me-nots in both high and low places as befits the species, and even Horsetails rear their heads in swampy places. Of course, there are also scrub—the Bramble and the Hawthorn, and also nobler examples of ligneous life in Alder and Birch, while higher on the slope tower and spread the majestic Oak—Britain's predominating monarch of the woods.

What is it all? Simply the passage of sandstone upwards into soil. There is the solid sandstone below ground, broken up above ground into blocks and becoming lesser upwards, finally passing into the earthy layer that supports the vegetation of the surface. But in the example, we have the rock face as left by some anterior convulsion or breaking away, and this in a very advanced stage of breaking up by weather.

Now, suppose we endeavour to imitate such rock. What we do is to build up the walls of a steep slope, say somewhat after the manner of an old building weathered so as to be almost tumble-down, the stone eaten away and scattered deep and wide. So far, so good; and water running through will keep the rock moist by capillary attraction, and Hart's-tongues and Spleenworts can be accommodated to the heart's content. We can and do make the side faces as rough as we know how, so as to get more ledge, more pocket, more crevice, for the standage of plants.—G. A.

Cucumbers.

Not a very great deal of interest centres upon Cucumbers, yet these plants and their "fruits" are among the most important of any in gardens. Comparatively few varieties have been certificated during the last ten or twelve years, considering the importance of the subject. A trial of Cucumbers was conducted in 1906 at the R.H.S. Gardens, Wisley. There were some forty so-called varieties tested. The plants were put out on April 12th on low mounds of loam, 4ft apart on each side of a low span-house. They were visited on June 5 by the Fruit and Vegetable Committee, and the following were selected for high commendation, or three marks (xxx), having previously received awards: Matchless, Every Day, Ideal, Purley Park Hero, Sutton's Al, and Market Favourite. Others of note were Marvel, White-law's Early, XL All, and Satisfaction. Rochford's Telegraph is another great favourite. The very handsome Cucumber, Veitch's Unique, which we are privileged to figure, raised and exhibited by Mr. Mortimer (the raiser of Veitch's Sensation), was obtained from a seedling of Improved Telegraph, crossed with British King. The long straight fruit of a deep green colour, with very little shoulder, is exceptionally freely produced, resembling Improved Telegraph, but with the length and firmness of British King. It is well worthy of a trial.

The Old South Kensington.

From past records we learn that on August 26, 1868, the number of persons who visited the Royal Horticultural Gardens at South Kensington was 115,303. This beats Bank Holiday at Kew.

Notices of Books.

HANDBOOK OF COLORADO RESOURCES; compiled by Thomas Tonge, 220, Boston Buildings, Denver, Colorado, U.S.A.; price 50 cents.

The object of this book is to explain the resources, or some of the resources, of Colorado, for the information of intending home-seekers (settlers), capitalists, and tourists. The Continental range of the Rocky Mountains crosses the State nearly north and south, near its centre. Colorado has two natural divisions, viz.: (1) The mountain division, including the parks



Cucumber, Veitch's Unique; growing for seed.

and the foot hills, ranging in altitude from 5,000ft to 14,000ft; also including the broad table lands and extensive valleys of the western slope. (2) The plains division of the eastern part of the State, extending from the foot hills of the Rocky Mountains easterly to the boundary line of Kansas. Its climate is said to be superb, at any rate in many parts; its mineral wealth is distinguished ("Colorado leads, in the production of the precious and allied metals, all other States and territories of the Union"); its agriculture is fast developing—"The development of agriculture in Colorado since 1880 has been the wonder of western civilisation, and it has been mainly accomplished by means of irrigation, together with unequalled climate and soil"; it has excellent forest reserves—"The U.S. Government has created in Colorado a number of forest reserves, comprising over 15,000,000 acres, covering the higher mountain ranges of the State"; and fruit is becoming quite

one of the leading industries:—"86,500 acres are planted to fruit, while the further land available and suitable for fruit culture aggregates 920,000 acres."

Mr. Tonge supplies statistics of the population, and of the total population in 1900 of 539,700, no fewer than 448,545 were American born and only 91,155 were foreign born, including, among the latter, 19,599 of the sons and daughters of Great Britain. Particulars of each of the great industries (agriculture, mining, &c.) are furnished, and the last forty pages are specially descriptive of the characters, meteorology, productions, activities, and towns of the fifty-nine counties of Colorado. It is an excellent handbook of over 100 pages.

SWEET PEAS AND THEIR CULTIVATION FOR HOME AND EXHIBITION, by Charles H. Curtis, hon. secretary Nat. S.P. Society. Collingridge, Aldersgate Street, London; 1s. net.

"The close study of Sweet Peas," says the author of the little book, "apart from the floricultural point of view, has scarcely begun." He is discussing the appearances of Sweet Pea seeds, and among other things observes that some varieties, notably Lady Grisel Hamilton, produce small and mottled seeds, which are nevertheless good. But small seeds of the variety Dorothy Eckford are more or less poor. "Seeds do not differ so much in appearance as the varieties they represent, but they do, nevertheless, vary considerably"—hence the remark which we quote at the beginning of this paragraph.

While on the subject of seeds we are glad to observe that prominence is given to the fact that some seeds have a thicker integument, or outer skin, than others, and sometimes this skin becomes so hard that it appears to be nearly impervious to water, and the germ within cannot burst it. Growers have only lately discovered that these over-ripened or hard-skinned Peas require more than to be soaked in water before being sown: they require to have the seed-coat filed or cut. This filing or cutting should be done on the "back" of the seed—not on the side which was originally joined to the parent pod. Unless hard-skinned Peas are treated in this way they may never germinate at all.

Something of the fragrance and airy grace of the Sweet Peas seems to attach itself to and permeate much that is written about them; and certainly this is true of Mr. Curtis's book. The author knows how to make himself interesting, and not once do we discover him to be obscure. His considerable experience as a horticultural journalist warns him of errors of ambiguity, prolixity, and presupposition. The book is well apportioned, practical, complete.

In the details upon soil preparation, the cultivator is advised that "as Sweet Peas love phosphates, and as phosphates are slow acting, the right thing is to add superphosphate of lime and bonemeal as the work of trenching proceeds, allowing two ounces of each per square yard. . . . Basic slag, which contains phosphoric acid and a large percentage of lime, is a very suitable artificial manure with which to supplement the other materials used in an effort to bring heavy soil into good condition. Three ounces per square yard is a suitable dressing." Autumn and spring sowing is discussed, and the dates for spring sowing in the open are—for the Southampton neighbourhood and the Isle of Wight, the middle of January; for the south of Ireland, South Wales, and the south of England generally, the middle of February; for North Wales and the

Eastern Counties, early in March is soon enough, and northwards it is mid-March, or even the first week in April for Berkshire and the Border counties. The system of raising the seedlings in pots, however, is becoming more and more the practice, and the full arcana of culture is described.

In the chapter "Sweet Peas in Tubs and Pots," the advice is to take care that the plants do not suffer in dry weather, and when the pots or tubs become well filled with roots, to supply liquid manure at brief intervals. The liquid manure is very necessary with the Peas thus confined. In the dry summer of 1906 we grew numbers of Peas in tubs, affording them excellent drainage. Lo! we were kept watering morning and evening each day. Last year we reduced the drainage and pounded the soil. Alas! it was a wet season, and our efforts were all "agee." A method of cultivating Peas in 9in pots, these being plunged in the grass, is detailed on page 63, and this form of utilisation ought to become widely practised.

The chapter of hints for exhibitors is on a par with the other useful sections of the book. Exhibitors are advised never to cut the flowers when they are wet; to pack them dry; to let them stand for several hours in water before staging them, or at least before they are judged, as they increase greatly in size after they are cut and so treated.

The various chapters include the history and development of the flower, and enthusiasts have the inner history recorded of several famous gems, including Countess Spencer, Gladys Unwin, and John Ingman. Bush and Cupid Sweet Peas find a place; then follow selection of the best, and of the too-much-alike and superseded sorts. Winter-flowering varieties have a chapter to themselves, and diseases and pests are practically dealt with, there being several illustrations. In the matter of staking the reader is also assisted by means of line drawings, and throughout the book there are several photographs of popular Sweet Pea varieties. The work has appeared at the right time, and is certain to prove highly serviceable and successful.

Hardy Plant Notes.

Euphorbia epithymoides, Linn.

Over 600 species of annual, biennial, and perennial herbs and sub-shrubs belong to the genus *Euphorbia*, including the humble *E. Peplus* of our own damp woodlands, and the glorious *E. pulcherrima* (the Poinsettia), and *E. fulgens* (syn. *E. jacquinæflora*). The compact-growing plant which we figure reaches 1ft to 18in in height, and bears rich golden masses of terminal cymes every spring, enriching the hardy plant border during March, when very little else dare face the cold. This and similar *Euphorbias* (as *palustris*) thoroughly deserve attention.—D.

Doronicum caucasicum as a Spring Bedder.

Among the truly "dependable" hardy flowers of spring we may place *Doronicum caucasicum*, the Caucasian Leopard's Bane, one of the brightest of the yellow blooms of spring, and one which flowers exceedingly freely, while its habit of growth being so neat and dwarf makes it more suitable for a spring bed than any other plant of its genus with which I am acquainted. *D. plantagineum excelsum* is too tall for the purpose, save in a few gardens of considerable size, and *D. austriacum*, its nearest rival, is much coarser in its style. *D. caucasicum*, on the other hand, is quite neat, it is frequently only some 6in high, and in rich soil rarely ever exceeds 9in or 10in. The flowers are large and of a good yellow, and they are far from being heavy looking, the narrow ray-like petals depriving them of any formality. These blooms are also good for cutting, and the fresh green foliage is pleasing in itself. Although rich soil makes this *Doronicum* taller, it is also more conducive to free blooming than a poorer medium, and the beds should be well enriched in autumn, the plants placed in position in September or October, using good plants and placing them almost close together, so as to have a solid effect in spring. If required for a permanent bed the *Doronicum* may be allowed to remain for a year or two before lifting, thinning, and replanting, but if the beds are required for another purpose the plants may be lifted, put in good soil in the reserve garden, and replaced in autumn. Gladioli may be used in the permanent bed of *Doronicums* by lifting portions of the plants in the desired positions, making holes for the corms with a trowel and planting the Gladioli with a little sand about them, replacing the *Doronicum* above. When the lifting time for the Gladioli comes round they may be removed with no real detriment to the *Doronicum*.—S. ARNOTT.



Euphorbia epithymoides.

Tritomas from Seeds.

Tritomas are generally much cheaper than they were a few years ago, but if one has to purchase a considerable number so as to arrange them either in groups or lines, the expense is by no means inconsiderable, especially if the newer hybrids are included in the desiderata. It is thus well worth while considering whether it is not desirable to wait until a stock of these brilliant garden flowers can be raised from seeds. This is by no means difficult, and with proper treatment, a proportion of the seedlings should bloom the second year from seeds, and the others in succeeding seasons. This may be too long for some to wait, but, on the other hand, the saving of expense is very great, and little difficulty will be experienced in raising and growing on the seedlings. Seeds are now comparatively cheap, and, as they germinate well, they may be considered a very good investment for the small cost they involve.

While the seeds of these Torch Lilies, or Flame Flowers, can be sown in the open air in small lines in the reserve garden, this is better left alone until April or May, and thus there is a considerable delay, which makes all the difference where early maturity of the seedlings is desired. It is thus advisable to sow the seeds under glass, and if a heated structure is at command this should be done as early as possible, using either pans or boxes, well drained, and almost filled with a light compost of loam, leaf soil and sand. In this the seeds may either be sown broadcast or in small drills, which I prefer for after convenience in handling the seedlings and for present thin sowing—a most important matter. If a heated structure is not available, a cold house or a frame can be used, but here again the seedlings will appear and will grow more slowly.

As soon as the little seedlings appear they should be pricked off into other pans or boxes, and when larger can either be planted in reserve beds or grown on in pots or boxes. If left in the reserve beds they must be slightly protected with dry litter the first winter or two, and, of course, in gardens where the Kniphofias do not prove hardy, every winter afterwards in addition. The plants in pans or boxes can be placed outside and removed indoors before frost makes its appearance in autumn. They can be wintered in a frame or cool house, and in the following April planted where they are to bloom. When planted out they will well repay liberal treatment in the way of manuring, and nothing suits the young plants so well as occasional doses of very weak liquid manure. It may be well to say that the seed pans should be kept for a little after the first seedlings have been pricked out, as it is no unusual thing for others to appear for some time afterwards. As to the species and varieties which can be raised from seeds, it may be said that the only limit is that of those which can be procured in the form of seeds, and the fact that the hybrids are not to be depended upon to reproduce themselves from seeds, although the species generally do. Seeds of the hybrids can now be had in mixed packets, and from these many good varieties, giving the popular yellow shades as well as the bright red and crimson varieties, will probably be secured, provided that the strain is a good one.

Then, among the species, seeds are offered of such species as the charming dwarf *T. corallina*, *T. Macowani*, a still dwarfer, but very beautiful species; the showy *T. nobilis*, a form of *Uvaria*; *grandiflora*, another fine form, and the typical *Uvaria* also, with the orange-red *Rooperi*, the handsome *Saundersi*, with rich scarlet blooms in glorious spikes, and the early-flowering *Tucki*, another good Torch Lily. Others can probably be had, but the above are offered in this year's seed lists. One cannot advise those who wish to have their gardens gay the first or second seasons with *Kniphofias* to embark upon their cultivation from seeds, but those who have to consider ways and means, and all who can afford to wait for a year or two, will, in the end, be gratified at the results of raising *Kniphofias* by this means—one which gives many unexpected and often valuable results.—S. ARNOTT.

Sweet Pea**Dobbies Princess Victoria.**

This is the famous pink Sweet Pea which Her Majesty the Queen named when visiting the Rose Show at Regent's Park last July. Messrs. Dobbie and Co., of Rothesay (who have lent the illustration), had a large basket of their new Pea on view, and the beauty and fragrance of the flowers attracted the Queen's attention; and with her was Princess Victoria. Of course, when she mentioned her desire, the Royal seedsmen were most delighted to accede, and one is glad to know that the novelty afterwards obtained awards of merit at the Sweet Pea Society's meeting, also from the R.H.S., and first class certificates at Wolverhampton, Luton, Handsworth, and Dunfermline. It has been found perfectly true in the Reading trials, and is



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Row of Sweet Pea "Princess Victoria."

a large-flowered, robust variety. The raisers describe it as "a charming 'Spencer' flower, coming exactly midway between the true Countess Spencer and Mrs. Hardcastle Sykes in colour. The standard is heavily flushed with a lovely shade of pink, the wings being clear bluish pink."

Market Gardening.**CLEANING GLASS.**

This week, when calling at the nurseries at Fortis Green, noted for the Covent Garden supply of flowering stuffs from the Messrs. Williams, I found them cleaning the glass: Soot and rains had covered the glass with a thick deposit. It is absolutely essential to have light for production of Tulips, Narcissi (single Van Zion), and Hyacinths. While they called my attention to what was being done outside, it was also pointed out the necessity of indoor cleaning also. This was done with a wrapper on a short brush, without water, on account of the crop below. Azaleas are also another of the light-loving subjects. These are a large item for the Christmas and New Year trade.

CARNATION MARKET TRADE.

Granting that the selling prices of the above as cut bloom are lower than two seasons ago, evidently there is sufficient profit to the grower to cause them to enlarge their buildings. What I now see is a fairly large grower now setting out four other spans. It is interesting to follow the doings of the several marketmen; in no one instance is there any standing still. Going back to the one whom I am now referring to, seven years ago the bulk of his "Car." growing was in frames. Gradually extending, it has now displaced both Tomato and Cucumber growing, and ere long I look for it to push first the white Pelargonium cut trade, then cut Roses quite out. In addition to the cut flower trade, provision is now being made for plant selling from the propagating bed, and also from 60's. Carnations are come to stay, and with the better understood means of cultivating, the newer Americans, with all due respect to our home raisers, have points very far ahead. Constitution, free winter flowering, size of bloom, stiff stems, and fine perfume are theirs.—STEPHEN CASTLE.

The Fruit Harvest of Ticino.

Vegetation around the Italian lakes is proverbially luxuriant, yet to how great an extent its tropical propensities go a lengthened sojourn alone can reveal. Directly you reach the southern side of the Alps or greater mountain barriers separating Switzerland from Italy, the revelation begins, for though Locarno and Lugano and the northern portions of their lakes belong to Switzerland, they are entirely Italian in architecture (as witness the narrow arcaded streets), language, colour, and cultivation. Switzerland's southernmost canton is, in fact, Italian Switzerland, just as Berne is German, and Lausanne French Switzerland, and its deputies speak in Italian in the Swiss Parliament, which, like the Austrian, is trilingual. The tourist, therefore, to Lugano will hear nothing whatever but Italian spoken in the streets (except by other "forestieri," who are chiefly German, the hoteliers, and the larger shop people). He will have to transact his postal customs and official business in Italian, and in the country around, unless he has some smattering of the native tongue, hardly a word of information will be obtained. In such a country as this a lack of a little Italian will lose one much profit and entertainment, especially should the time of the vendemmia or vintage be on. This, one may say, is the crop in chief of the Ticinese, for numerous although their other crops are, it is undoubtedly the chief string to their bow.

VINES AND THE VINTAGE.

The Vines are trailed very freely from stake to stake, tree to tree, over palings, arbours, walls, against houses, and I have even seen them running over waste heaps just like the Vegetable Marrow. They form, indeed, a very striking contrast to the Vine of the Rhone Valley and the lake of Geneva. There it is always the white Grape, its stem being pruned close to the ground, and the year's shoots tied to a small stake of some 3ft in height, while here it is entirely the black or American Grape, introduced some fifteen to twenty years ago to replace their own, which became ruined by the phylloxera. Hill and valley alike, but chiefly on the slopes to a height of some 2,500ft, the Vine is cultivated, and during the whole month of October every man, woman and child is engaged in picking the luscious fruit, either of their own little plot or of their "padrone." Exceedingly picturesque do the contadini look with their bright caps or handkerchiefs and many-coloured aprons in and out of the green leaved vineyards. The bambini especially, with their dark eyes, short frocks, wooden pattens, and warm hued stockings, sometimes vivid orange, red and green, are really fascinating.

This last year of grace (1907) the "raccolta" has been an extraordinary prolific one, and despite six weeks' incessant downpour throughout the harvesting in time (during which the Lago di Lugano overflowed its banks, having risen three to four metres), the in-gathering was satisfactorily performed, and reckoned a fine vintage. As to price, in the height of the harvest you may buy your Grapes at the almost incredible price of ten to fifteen centimes the kilo, while practically as you take your walks abroad you may eat your fill both from judicious little gifts to yourself, and by the invariable courtesy offerings of the peasants, "Prende, signore, ho abbondanza." Then, too, you may test your palate with the "most," or fresh juice of the Grape just pressed out, and before being turned into wine. You will see the peasants (chiefly the women, who, according to the Italian trait, are generally the burden bearers), toiling up the narrow path leading from the vineyard with the ubiquitous long shaped basket slung through the shoulders on to their back and containing a weight up to even fifty kilos! These odd shaped baskets are the universal carrier of the country. They vary from a minute size suitable for a tiny child to the full length article for an adult, and are used to convey every imaginable article, from their miscellaneous marketings at the weekly fair, when you generally see, also peeping out, their large red umbrella, to the portable load of manure, when busy on their plot of ground. At the autumn season you will mostly see them loaded up to the top with Grapes or Chestnuts, and as a variety, not infrequently sundry squeaks will draw your attention to the fact that sucking pigs are the inmates, while the bambino too is often made very snug inside.

A LAND OF PLENTY.

The other chief crop hereabouts may be reckoned the Chestnut harvest. This tree grows indigenously. It is the main timber growth, forming whole forests, and beautiful indeed are hill and dale in October and early November with their garb of gold. It is really remarkable how even the quite young seedlings and shoots of but a few years' growth, from the stumps of trees periodically cut for poles and firewood, bear fine fruit. Taken as a whole, the nut is a very fine one, a rich

mahogany brown, comparing favourably with the Chestnut that I have seen in Southern Italy, Corsica, or Spain. On some of the lower heights round Lugano magnificent trees may be seen. Thus at Gentilino a specimen has been measured, and spans no less than eight metres in circumference.

Among the smaller crops must be mentioned the Fig, the Mulberry, and the Medlar. The visitor will find the former much in evidence all through August and September, and may buy the small purple fruit or the larger white one alike, if a good season, for from twenty to thirty centimes the kilo. Here and there may not infrequently be noticed the wild Fig bearing very creditable and delicious little fruits. The Mulberry comes in earlier, and in many parts the fruit is but a secondary consideration, the leaves being the valuable product for rearing the silkworm. This is nowadays not nearly so extensively cultivated as of yore, owing to the lower price silk obtains. A good many Medlars are grown, but they assert themselves in a quiet sort of way, and as both trees and fruit are of an unassuming size, and are grown in and out among the shade of other trees, you may pass by without noticing them. Even the Pomegranate plays a small part in the year's productions; but even at its best I have ever thought it a very inferior fruit. Mention should also be made of the Walnut, which in good years forms a crop of considerable importance. This season, however, this side of the Alps they failed, and in any case I fancy are nothing like so abundant as in the Rhone Valley and lake district from Montreux to Lausanne. Curiously enough the other side of the Alps I remarked that the trees all over were bearing enormous crops. Other products more or less extensive are the Almond and the Peach, while Maize and Tobacco are also cultivated.

THE NATIVE FLORA.

As to the flora of the district, it is, as may be supposed, a very rich one, comprising many growths entirely native and not found elsewhere. There is no doubt but that at one time or another an enormous quantity of rain falls all round these lake regions. Were it otherwise the vegetation could not be so extraordinarily luxuriant. Only a small portion of the flowers can be touched upon. In the autumn the sweet scented Cyclamen may be picked abundantly among the wooded heights of Monte San Salvatore and Monte Generoso, while all the dead season the beautiful Christmas Rose is in the greatest profusion in the mountain woods. The spring, of course, is the season for the flora here, as elsewhere. Then will charm you countless woodland and pasture flowers, such as the Crocus, the Scilla, and the Hepatica growing broadcast, with fragrant Oleanders, manifold Saxifrages, and exquisite orchids. The rare Ceterach Maranthæ and the Maidenhair fern are also to be found. Other plants of more or less rarity are (to give them their Latin names), Scabiosa graminifolia, Cytisus capitatus, several Ranunculi, Campanula bononiensis, and Corydalis lutea, while on the reedy shores of a small lake some 500ft above Lugano, the curious Water nut, Trapa natans or Castagna d'aqua, may be seen.

NATURALISED EXOTICS.

Finally, as regards exotics cultivated in grounds, I think the bamboo has struck me as being perhaps the most remarkable. It grows simply rampant and as if indigenous to the soil, attaining in the more sheltered spots almost the girth of trees I have seen growing in whole forests in Japan. The finest are undoubtedly on the terraces of those two islet gems, Isola Bella and Isola Madre, in the Lago di Maggiore between Pallanza and Baveno. These wonderful terraces, rising tier upon tier, contain almost incredible treasures in the way of tropical trees and shrubs. In March the Camellias are glorious beyond description, while fragrant Magnolias and "Mimosa" testify to the mildness of the climate and the richness of the soil. Magnificent palms of many varieties flourish entirely without protection, as also the Aloe and other cacti. A very sweet scented growth that attracts attention by its strong essence, and which is a frequent inhabitant of the villa gardens about Lugano, is the "Vanilla shrub." A small spray of this when coming into flower will keep fresh in a glass and scent your whole apartment for a fortnight. Besides the above, in most gardens, and especially on the lovely Boromean Isles just mentioned, may be seen Orange and Lemon trees, Cyresses, the Bread-fruit, Camphor tree, the India Rubber and Castor-oil plants and the cork tree; while the Laurel in many regions grows entirely wild. Space forbids more than mention in closing of the hanging gardens and trellised terraces which have reached the acme of cultivation and elegance all along the sister lake from Bellagio to Como, whether in connection with the modern villa or the ancient, picturesque, but half-ruined Italian arcaded osteria.—J. A. CARNEGIE-CHEALES.

Fruit Trees at Reservoir.

Newport Waterworks Committee has decided to plant 470 pyramid Apple and Pear trees on the southern slope of Llanvaches reservoir.



Ten-Week Stocks.

Many varieties of Ten-Week Stocks are offered in seedsmen's catalogues, but all are not of the same good class strain. What a model spike ought to be is shown in the illustration, which is lent to us by Messrs. Dobbie and Co. Of course, they are not the only florists who possess a good strain, for indeed all, or most of, the leading houses bestow especial care on their Stocks. For cut flowers Ten-Week Stocks are very useful, from early summer to autumn. Sow in boxes or pans in an intermediate temperature in March, prick off the seedlings in due course, and when they are re-established grow them on cool, finally hardening them off before transplanting into open-air beds, or in borders. This takes place usually at the end of May or beginning of June. Second or third sowings may be made under glass until May. This lengthens the flowering season. Among the kinds grown are the Large-flowered, Giant, Wall-flower, Pyramidal, and Victoria Ten-Week Stocks, all in various colours.

A New Malady of Narcissus.

Several horticulturists in the neighbourhood of Toulon, France, who grow for the cut flower trade various sorts of *Narcissus*, e.g., *N. Tazetta fl. pleno*, *N. aureus*, *N. papyraceus*, &c., have experienced a serious loss during the last season, owing to the damage done to bulbs by a destructive larva of some insect. The matter has been studied by M. Valery Mayet, the distinguished professor of entomology at the Ecole Nationale d'Agriculture at Montpellier. He has reared the larvæ in question, and finds them to belong to a beetle named *Malacosoma lusitanicum*, belonging to the family Chrysomelidae. This insect is very abundant in the central region of France, and at the beginning of May is common on the flowers of various compositæ. M. Valery Mayet advises the taking up of the bulbs and a disinfection of the soil by means of bisulphide of carbon, applied at the rate of 24lb per acre. As a further measure, it is recommended that the beetles themselves should be collected and destroyed, which can easily be done, as they do not readily fly, but allow themselves to be caught without any difficulty.

The Hampshire Woods.

No one who has not lived year in year out in a Heath and Fir country can know the charm of these woods at every season. In summer the elastic carpet of fallen needles, the trees themselves oozing with turpentine, are richly aromatic, though, perhaps, less enchanting than the "chequered shade" of a Beech or Oak wood. But in autumn there is no fear of the "fall of the leaf"—that season so dreaded in our stately Elm-grown Midlands, when the dripping leaves overhead fall on the cold grass below, when the atmosphere is laden with rank exhalations from rotting vegetation, and chill mists rise from the clay lands. In our Fir woods there may be a good white fog. But that harms no one; and only serves to make the lonely woods more full of mystery and weird attraction. The air is purified by the fresh, health-giving scent of the Fir trees. The porous carpet of brown needles below them lets the wet sink through to the porous gravel soil over which it is spread. And through that carpet appear wonderful growths like glowing jewels—Toad-stools and fungi of every shape and size of colour. There are hundreds of the splendid scarlet Agaric with white spots, that would send one raving mad in an hour if one eat it. Dainty brown parasols, too, of exquisite tones, with fringed collars encircling the graceful stems. Some are rich amethyst, others pale sulphur. There are balls and hoods and little cups—brown, orange, white, pale grey, in endless variety. And when set in great dishes of the freshest green ferny moss, they make a really gorgeous bit of decoration.—R. G. KINGSLEY (in "English Illustrated Magazine").

The Holly Tree.

The Holly tree, with its splendid red berries and shining, prickly leaves, is a beautiful decorative plant, very hardy and abundant: it was used by the old Romans in their "Saturnalia," a feast which nearly coincided with the Christmas of the new religion. There is a species of Holly in South America the



Dobbie's Large-flowering Ten-week Stock.

leaves of which are made into tea by the Indians, the Paraguay tea or maté. This tea is an unpleasant, bitter decoction, devoid of aroma, if I may judge from samples which I have tasted in London. "Ilex" is the botanical name of the genus to which both our Holly tree and the Paraguay tea belong, but it must not be confused with the Evergreen Oak to which the name *Quercus Ilex* is given on account of the resemblance of its leaves to those of a Holly.

Earth Pits and Protection.

We have frequently alluded to these, but as a reader who has plenty of room, litter, and mats, wishes to have one, and so as to be permanent, to save dwarf Cauliflowers, Lettuces, Endive, &c., and to forward Potatoes, put out bedding plants, &c., in spring, we would advise him to carry out his proposals; but in his stiff ground, above all to avoid making any sort of a trench, as for a Celery bed, as dampness will then be a greater enemy to him than the frost would be. The first point, then, is to have the bottom of your pit as high as the natural ground, if a few inches higher all the better. The second is to have the width of the open space less by from 4in to 6in than the width of the proposed covering. The third is to prevent water accumulating in the pit, if you do not use waterproofed covering, such as putting a small drain a foot below the surface in front, with small pipe outlets from that beyond the front earth wall, but with the open mouth of these protected by wire to prevent mice, &c., entering.

The fourth point is to have the back wall about double the height of the front one, the height to be proportioned to the width, and to the height of the plants to be grown in them. From 4ft to 5ft in width is a very serviceable pit, and even for rather dwarf plants of Cauliflower, inclined a little to one side, 15in at back and 8in in front will do, and be quite deep enough for the other purposes mentioned. Now, for such a pit mark out a space of 6in narrower than you intend the top to be, as you cannot build the walls quite perpendicularly, lay out a space 2ft in width at back and 18in in front, and make that the foundation for your wall. Take earth from the neighbourhood, so as to raise the wall, in layers, well trodden and beaten, until it is a foot wide at the desired height at the back and 9in in front, in both cases sloping to the natural level outside. This secures the walls of the pit. Run a turf along the top and the sloping sides, which will not only do much to keep out frost, but to send off rain, as very little moisture will pass through such sloping turf. If turf cannot be obtained the walls and a space beyond them may easily be made waterproof by beating the outside smooth, spreading over it a very thin layer of tar, and on that a thin layer of fine gravel, coal ashes, sawdust, or anything most handy, and for the first winter, at least, covering over with a little litter to keep the frost out. In both of these modes we have had useful dry pits that have lasted many years, and been as useful as more costly conveniences. Some time ago, after drenching rains, we had occasion to break one of these earth walls, merely covered outside by turf, and found the earth beyond the exposed surface as dry as if baked in an oven.

Now for protection. Such pits, beyond breaking the force of the wind, are little better than laying in plants in the open air thickly and protecting them with litter, as everything is liable to become wet with snow and rain. Their chief value depends on having protection, more or less, that will keep out wet. The best material and the cheapest in the end for the purpose will be thin moveable wooden shutters, and when well-seasoned tarred on the outside. The next best is asphalt felt, fastened tightly to strong light wooden frames. Straw covers are the next best, made with wheat straw, drawn and the heads cut off before threshing. When threshed by machine the straw is too much bruised, and thus retains moisture. Mats, which our correspondent refers to, become too heavy when wet, and when not stretched tightly allow the rains to pass. We have found them a valuable covering when stretched firmly on a wooden frame and tacked down to it, and then brushed on the upper side with coal tar, heated to make it spread freely and thinly, and then dry sawdust scattered over it. With us such covers have lasted several years, and are still doing good service.

For all these modes of protecting an earth pit in winter and spring, there must be two men to lift the covers off and on as needed, or a stout piece of wood should go from back to front of the pit, and be fixed beneath the surface, on which one man may slide the covers upwards and downwards. Even with such protection in severe weather, some long stable litter, or other similar substance, will have to go over them, and should not be removed until the frost has gone for a day or two. We have had such protection untouched for six weeks, unless to break the surface to arrest the direct lines of radiation, and when exposed the plants looked as fresh as if they had been shut up for only a common winter night. These covers or frames may rest on the back end, and be lifted up less or more on notched sticks when the weather will not permit of their being taken off, and yet is mild enough for plenty of air being given.

All these are best managed when fixed to frames from 3ft to 4ft wide, and the expense of the frame, even in the case of the mat, will soon be saved, as mats last but a little time when rolled up and rolled down frequently, but are a valuable means of protection when kept whole and the surface more or less waterproofed. These earth pits are also easily protected by any textile material that can be fixed on light poles and rolled on

and rolled off with ease. For winter use, a waterproof pliable material would be the best for this purpose. For spring use frigi-domo rather tightly strained answers well; but for all such purposes unbleached calico will be the best and the cheapest, whether waterproofed with oil, beeswax, and driers, or as sent out from the loom, for when tightly strained it sends off water like an umbrella; and when any of these means are used, cross sticks, as alluded to above, will be necessary to keep the covering above the plants, and to act as the whalebone in the umbrella. When using such material it is well to have a slight rail of wood at the back and front of the pit, to keep the calico, &c., from resting on the ground. Besides the pole at each end for every 30ft or 40ft in length to roll upon, and to stretch tightly longitudinally, strings will be wanted every 4ft or so, back and front, to tie to pins to keep the calico, &c., stretched.

Our experience would lead to the conclusion that when we can purchase nearly two-yard-wide, not-over-strong, unbleached calico for from 6d. to 8d. or a little more per yard run, there is no other protecting material for such cold purposes that will answer so well or can be managed so economically. We have had bedding plants under such calico from the middle of March to the beginning of May, with scarcely the necessity of moving it all that time, and the plants flourishing without the need of water, &c.; and with such a covering our correspondent might keep his pit tight covered, unless when he wanted to gather the contents, as sufficient light would be admitted to keep up growth, and sufficient air would circulate freely by merely elevating the calico a little back and front between the strings that keep all tight. In severe weather a little clean straw and clean litter would require to be thrown over it. We find that for such purposes a very stout strong cotton is not so economical as a thinner cheaper one.—F. R.

Unigenous Bedding.

A conifer in the centre of a bed, which it is allowed to monopolise, is the simplest possible form of a bed of one thing only, and a well-grown specimen, feathered with branches right down to the turf, is a never-ending source of satisfaction at all seasons of the year. Equally pleasing in a different way is a bush of *Deutzia*, *Crataegus Lelandi*, or *Laurustinus*, or a well-grown clump of *Berberis Darwini*, one of the *Azaleas*, or shrubby *Veronicas*, treated in the same way. From beds of this sort to beds composed of a group of tall flowering plants is but a step, and this introduction will make the idea and purpose of this article clear at the outset.

It is not proposed for a moment to advocate the general adoption of this form of gardening, or even its use at random in the more formal parts of the garden. Such beds might be out of place amongst beds of ordinary summer-bedding plants; that, of course, depends upon the general character of the garden; but in many gardens there are places where a small bed might be made on the lawn—near side-walks, in front of shrubberies, and such other more or less out-of-the-way places, and used for the growth of one plant, or group of plants, or a clump of some strong-growing perennial in such a way that it would have somewhat the same effect as a small flowering shrub in a bed in the turf by itself. Only choice perennials should be given this degree of prominence, and of these only those which are more or less presentable in appearance for six months of the year. It is obvious that this method offers opportunities for growing favourite perennials to the highest state of perfection if sufficient trouble is taken, and this is one of its recommendations.

In making a bed for this purpose where there has not been a bed before, the first thing is to take out the soil to a depth of at least 3ft and barrow it right away, the hole being filled up with good soil, the nature of which must depend to some extent upon the character of the plants to be grown in it. A bed 3ft in diameter is a good useful size for our purpose, and if it is properly made at the beginning, it will last for several years without being turned out again so completely. This is given as an average size, though some things will require a bed twice as large, while others will do very well in a bed 2ft or less in diameter—the size of a very large flower pot in fact. For the best results the bed should be made larger than this, and then partially turfed over. By liberal cultivation of this sort the plants will stand a great deal of drought, and will make that vigorous growth of stem and foliage which is necessary for a specimen plant or group of plants to produce the best effect. How often a bed must be taken up and turned out must depend upon the character of the plant, some plants doing all the better for being taken up every year or alternate years, and given some fresh soil, while others do not attain their full vigour until the third year, in which case, of course, they should be left undisturbed for several years. This will be seen from the examples of beds of this nature which I would like to describe in a forthcoming article.—A. PERKS.

Diseases of Plants.

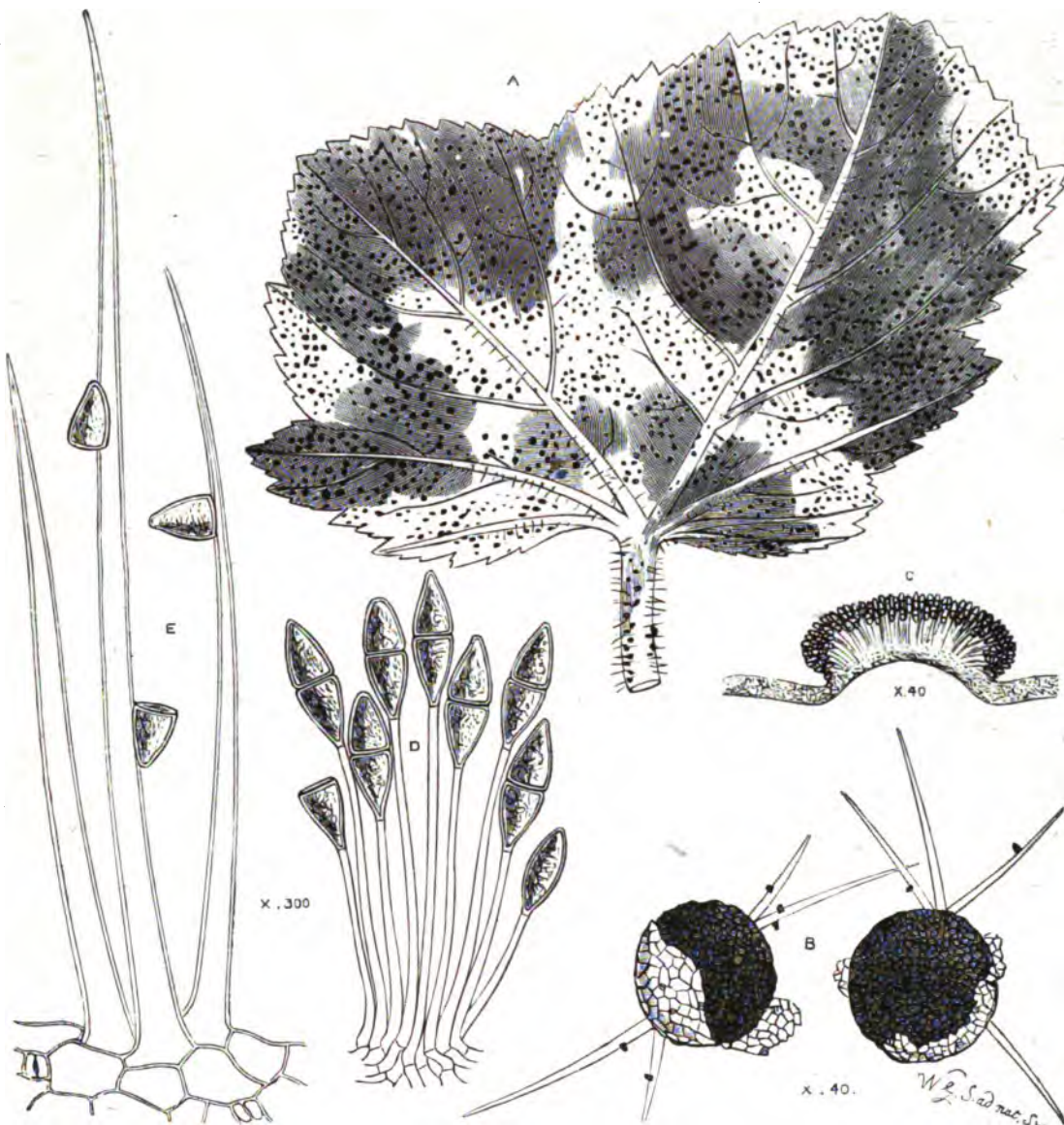
Hollyhock Rust.

Puccinia malvacearum first appeared in Chili on a species of *Althæa*; it next appeared in Australia, where it proved extremely destructive to the Hollyhock (*Althæa rosea*, a native of China). In June 1873 it was recorded from France, whilst at the beginning of July it had reached this country, where it immediately commenced its ravages on our Hollyhocks with great virulence, and completely killed to the ground all the plants it attacked, both in private gardens and in nurseries. From the south of England it rapidly spread to the north, and during the early spring of 1874 in certain districts near London nearly every leaf of *Malva sylvestris* was blackened by this new

each individual leaf was capable of producing ten million perfect plants of the *Puccinia*. Figures altogether fail to give any idea of the enormous reproductive powers of this mischievous fungus. The only method of stamping it out appears to rest in at once taking up and burning root and branch of every infected plant.

The accompanying illustration with description, drawn from Nature, will serve to give a good idea of the plant as seen under the microscope, and the smallness of the pest and the spores when compared with the hairs and breathing pores of the Hollyhock leaf itself.—W. G. S.

Mr. G. Massee in "Plant Diseases" gives the following as preventive means. "Spraying with Bordeaux mixture is effective."



The Hollyhock Rust, *Puccinia malvacearum*, Mont.

- A. Hollyhock leaf infected with the disease (natural size).
- B. Pustules bursting through cuticle, with epidermal hairs, on which some of the spores are scattered. Enlarged 40 diameters.
- C. Section through pustule (or sorus), showing the clusters of uni-septate spores *in situ*. Enlarged 40 diameters.
- D. Group of uni-septate spores, seated on the distinct stems, or peduncles. Enlarged 300 diameters.
- E. Hairs from Hollyhock leaf, to show proportion between the hairs and the fungus. Enlarged 300 diameters.

All the figures enlarged.

pest. The Hollyhock disease is remarkable for its extreme virulence, for on affected plants a black spot is not merely seen here and there as in common with many species of *Puccinia*, but the affected plants have every leaf blackened by these obnoxious pustules or sori, which are entirely composed of uni-septate spores seated on stems as seen in section at C, magnified forty diameters. Every sorus contains more than ten thousand spores, and in the specimens sent for identification I counted more than a thousand sori on each leaf, therefore

tive. I have ascertained that—without spraying—when first year plants are diseased, if the fading leaves are collected, the plants are not diseased the second season, whereas if the leaves are allowed to decay on the ground under the plants, they are invariably attacked the second season; an observation tending to prove that resting-spores survive the winter and germinate the following spring. I have also ascertained that when the carpels are attacked by the fruit, the seeds produce diseased seedlings, the cotyledons usually bearing pustules."



Planting Trees on the Paradise.

On page 606, last volume, Mr. R. Morse supplies additional remarks on the above subject. He there asks this pertinent question, "Why have nurserymen gone to the trouble of raising a special stock on which to work the Apple, with the dual object of keeping it within reasonable bounds, and at the same time ensuring early fruitfulness, if we are to plant below the union and encourage them to send out roots and produce strong growth?" For an answer to this question let me refer Mr. Morse to my previous article on page 564, also to the latter part of Mr. R. P. Brotherston's note, page 583, where it is stated that high budded stocks have too great a tendency to produce roots too near the surface, and even above the surface of the soil.

The point I want specially to deal with now is this, that Mr. Morse seems to think that when trees are planted below the union, and the scions send out roots, the trees must necessarily make very strong growth. This, however, is by no means the case, as the numerous roots on the stock continue to be the greater controlling force. Even if it were possible after a time for trees to be entirely on their own roots, they would not make very rampant growth. Some varieties of Apples may be readily raised from cuttings, and when they are propagated in that way, their growth resembles that of trees on the Paradise rather than the growth of trees on the Crab. In this connection the question might be asked, Why, then, bother about stocks, when trees may be raised from cuttings? The answer is, Cuttings are uncertain, and some varieties will seldom, if ever, emit roots. Those of the Codlin type root readily, but even in their case trees may be raised more quickly and with greater certainty by grafting or budding. In regard to Mr. Morse's method of ensuring the uniform swelling of the stock and scion, I am bound to say he seems to take a great deal of trouble to accomplish what he might do quite easily by planting below the union. If his trees are satisfactory, why does he want to plant them deeper when lifting? Again, if he believes in lifting and replanting trees every two or three years, why on earth is he afraid of strong growth? No one who follows that plan will ever be much troubled with rampant growth, or, I might add would ever make Apple growing a commercial success. That continued lifting and replanting may do very well for the exhibitor or the private grower who has a limited amount of space for fruit growing and an unlimited amount of labour, but to the market grower it would spell ruin. When trees grow too strongly, by all means root-prune intelligently, and they can be kept within reasonable bounds without unnecessary expenditure, even though they are planted below the union.—G. C.

The British Gardeners' Association.

Mr. Burton (page 14), now compares the recent railway agitation with the B.G.A. The two have scarcely anything in common; and if the railway people threatened to strike it is no reason why gardeners should. There are two ways of securing reform: (1) by a general strike, as the trade unions have done in many instances. This is quite impracticable for gardeners for many reasons, which time and space forbid me to mention here; it is also, as I believe, quite wrong in principle, and I think the majority of gardeners will agree with me thus far. (2) There is also the plan adopted by clergymen, lawyers, medical men, dentists, and other professions, viz., to secure a close system of registration, and a thorough training of all the members of the profession by means of examinations, certificates, and close enquiry into all the circumstances of a young man's training and capabilities. The latter are the lines upon which the B.G.A. is working as fast as it can get the necessary support. We feel that the fact of gardening being the oldest of the professions, is no reason why it should remain the most disorganised. The requirements of the present day demand something better, and the improvements in horticultural science and in general knowledge demand it. Let anyone study the quotation from "The Evening Standard" on p. 5 of the *Journal of Horticulture*; it is only a specimen of many that appear in the daily and weekly papers, and is to a great extent true. Such men as those referred to are not gardeners, and ought never to be called by that name. We want everyone who is called a gardener to have a good sound English education, to be thoroughly trained in at least the first principles of his profession, and to work loyally with other gardeners for the benefit of the profession generally. In this way all will secure better conditions of life, because the untrained interloper will be kept out. He is the cause now of low pay and many other

evils. The classification of the membership of the B.G.A. by Mr. Burton is entirely wrong. He should apply to the secretary for facts before rushing into print. The majority is composed of head gardeners, and it is a very large majority. Curiously enough the young men who will benefit most by reforms are scarcely represented as yet; and very few of the members are connected with trade or public parks.—W. H. DIVERS, Belvoir Castle Gardens, Grantham.

The Loganberry and Flavour.

The question asked by Mr. J. Tait, page, 582, last volume, as to the comparative value of this fruit and the Mahdi-berry, was effectively replied to by "T. A."; but I would like to add a few remarks as to the flavour of the first named. In this respect I think it has been scarcely done justice, as this fruit, grown on a wall or fence, is less acid than when grown in the open; and to get it free from the acidity, the fruits must be allowed to get perfectly ripe before gathering. "T. A." does well to note the difference in stock, and here he touches a most important point. Are seedlings, as regards their fruiting qualities, reliable? I fear not; as I have on several occasions been asked to give an opinion as to the failure of the Loganberry as regards crop and quality, the canes making an enormous growth, and these invariably were seedlings, whereas our own canes never failed us, and I have frequently used the quite ripe fruits for dessert.

CULTIVATION.

Doubtless the best results are obtained from plants raised from layers, and these, from the original stock, have never failed. They bear splendid crops yearly if care is taken of the young wood during the growing season. The latter point is important, as the wood is of a soft nature, and if it gets twisted or damaged by winds the crop suffers, as this is the next year's fruiting wood.

A word as to position and locality. I have had a fair experience in the south and in the most northern county of the kingdom. In the south our plants did grandly on a north wall in a light soil, requiring abundance of moisture from June to August. At the start we planted 6ft apart, but so rapid was their growth that next autumn we had to pull them out, giving three times that space, some of the leading growths being 15ft to 20ft long, and these bearing fruits on a greater portion of the shoot, and large, dark-coloured fruits, much larger than a Superlative Raspberry. The lifted plants were placed on an east wall some 15ft high, and they did grandly when established. When the crop is gathered, no time should be lost in cutting out the old fruiting canes, and in laying in the new wood; but avoid crowding. In the north the results were quite as good, but, of course, the fruits were three weeks to a month later. They were not ripe till the middle of August, and they were planted on a south-west wall. The growths were not so strong either, but they gave a splendid return, and the fruits were equal in size and flavour. I also covered a high wooden fence, and this plant answers admirably for such a purpose. The plant well repays liberal top-dressings of manure in light soil.—GEO. WYTHES.

The Chrysanthemum Audit.

My thanks are accorded to Mr. Godfrey for the tone of his criticism on my remarks anent the analysis and the varieties as a comparison. No election took place in the year 1897, but the year following there was one. Now, with regard to a comparison of present-day sorts with those of 1897, let us see what there is in Mr. Godfrey's complaint as to the wish for a withdrawal of my criticisms. Has there ever been a white variety to equal Madame Carnot, let alone one at the present moment? Did not the yellows of that day, such as G. J. Warren and Phœbus, equal those of that colour named by Mr. Godfrey? Is there one bright coloured sort to any way equal my namesake? If so, what is it? Is there one in the whole range of Japanese varieties to equal those six blossoms of it staged from Linton Park in the Aquarium? Is there at the present moment one variety of its colour to equal Madame C. Audiguier of 1886? These dates go rather too far back for Mr. Godfrey I presume. He at that time was quite in his infancy as a Chrysanthemum specialist. Those who were cultivators then know quite well the excellence of that variety. Again, if he requires a giant flower to compare with those of the present day varieties, what of Etoile de Lyon? In Ghent in the year 1891, I saw a gentleman there take off his high hat to measure blooms of that variety I staged, he was so astounded at the size. Again, allowing that many of the then varieties were a trifle smaller than those in vogue now, does that mere increase in inches prove that they are superior?

Will Mr. Godfrey quote any writing of mine where I have written down the exhibition Jap and praised the decorative varieties? Yes, Mr. Godfrey, please prove what you say or withdraw it. I have many times written in praise of the decorative section, and if I follow the trend of popular opinion I shall have to write much more in their favour, because that is the section that is increasing in popularity, and nothing Mr.

Godfrey or myself may say can check their onward progress. I have many times of late said (because I think it is true, and I have no axe to grind), there is not the enthusiasm in the growth of large blooms there was. This I repeat, although I am somewhat sorry to have to say it. A letter before me at the present moment from a leading big-bloom grower, who has just changed his situation with a small share of my assistance I am pleased to say, writes: "No big blooms, no showing, but plenty of flowers," is one of the stipulations of his engagement, and like the sensible man he is, he intends to stow away his exhibition paraphernalia, and grow what his employer desires. I agree with Mr. Godfrey that the growth of decorative varieties does not display cultural skill of a high degree, but that is not the point; those who pay the piper will choose the tunes. Mr. Godfrey and the wise men play them, although that is not an advantage to all concerned in the raising of new Chrysanthemums. It does seem strange that all of those who sent selections of decorative varieties should have missed the few sorts named by Mr. Godfrey! Well, evidently they lack superior wisdom! Even so; but perhaps they may not be so far wrong as they are thought to be.—E. MOLYNEUX.

The Twelve Best-flavoured Apples.

It is probable that great difference of opinion may prevail as to the above, but I venture to send a list of a dozen which, for rich flavour, I consider the best:—

Adam's Pearmain is grand January to March, and forms a neat, twiggy bush or pyramid, and a weeping standard, and bears freely.

Allington Pippin on most soils ranks first class, and forms a very fertile tree in any form; November to February.

Blenheim Orange is first class in flavour, but is so long before it comes to profitable bearing as to be prohibitive for small gardens. Tree spreading; November to February.

Claygate Pearmain resembles the Ribston in shape, but is greener in colour and first class after Christmas. Tree spreading.

Cox's Orange Pippin, without doubt the best all-round dessert Apple, forming a neat tree in any style, but best preferably on the Paradise stock, does not succeed in heavy soils. Season, November to February.

Cornish Gilliflower, of the richest flavour, but bears very sparsely; best on standards, as it weeps like a Willow, and bears at the points; November to December.

D'Arcy Spice or Baddow Pippin, the famous Essex Apple, which is very late in the season, but requires to be kept in a cool damp place or it shrivels. Tree a very slow grower; March to May.

James Grieve, habit free but compact, most prolific, best described as an early Cox's Orange, not so rich, but refreshing and good; September to October.

Lady Sudeley, not only the handsomest in its season, but of remarkable flavour, it should be used direct from the tree; August to September.

Margil, small, very neat grower and fairly prolific; very rich flavour, no doubt one of the parents of Cox's Orange. November.

Mother (American). The finest flavoured Apple for October; growth upright, bears freely every other year.

Reinette du Canada, not a taking Apple to look at, but very soft in flesh and delicious in flavour about January or later; must be left on the tree as long as possible; spreading growth.

Ribston Pippin, very fine, but not a great bearer, and liable to canker. I should leave this out.

Roundway Magnum Bonum, often very large, always good, and I consider it the very best for flavour and softness of flesh; spreading free growth. November to February.

Sturmer Pippin, very fine as a late variety; must be left on the tree as long as possible or it shrivels; growth compact; a good regular bearer. March to May.

I find it difficult to reduce the list to twelve, but if Ribston and Blenheim were omitted, buyers would be well satisfied, though with regret I have to leave out Golden Reinette, King Harry, Lady Henniker, Mannington, Mr. Gladstone, Rose Nonpareil, Scarlet and Old Nonpareil, and Ballinora.—GEORGE BUNYARD, Maidstone, January 14, 1908.

Pot Washing.

The neat little paragraph penned by Mr. Stephen Castle in his "Market Gardening Notes," on page 18, will doubtless be read by your young readers with a certain amount of satisfaction, and possibly not without hope. How many lads are there in private gardens who spend half their time washing pots? I should not like to make a guess, but they must amount to

hundreds. I can almost produce a shudder now, Mr. Editor, when I think of my pot-washing days. It was almost a perennial job for the boys in my day; if by any chance some other work was set, as soon as it was finished, back one had to go again to the same old grind. Now, if there is anything in the gardening world a boy detests more than another, it is surely pot washing. What a waste of time too; at least seventy-five per cent. of the work is never required at all. Personally, I have not had a single pot washed for the past seventeen years, and it will be a warm time for any boy or man so wasting his time in my employ. All our pots are cleaned by the weather, as described by Mr. S. Castle; and it is all that is required. If a dirty pot crops up when potting operations are going on, it is put aside, for it will be quite clean in a few weeks outdoors. In cases where a particular size is required in a hurry, a whisk round with a piece of sacking or similar material will answer the plant's requirements as well as the most elaborate washing. The latter is one of those old-fashioned customs that have been handed down from generation to generation, and about on a par with the everlasting pot crocking, a subject I propose to offer a few remarks about in a later issue.—J. B. RIDING.

Canker in Apple Trees.

As one who is, and always has been, deeply interested in the above subject, I can hardly let the matter drop without saying a word. Well, sir, no doubt there are two chief factors in this matter, viz., soil and varieties, but I honestly believe neither are insurmountable difficulties. How well I remember an able article in one of the papers some years ago from the pen of that clever gardener, Mr. James Douglas, on canker in Apple trees, and how he cured it when at Ilford. The soil there was very stiff, and Apples were not a success until they were lifted and planted nearly on the surface, and every encouragement given to the surface roots. But ultimately they succeeded splendidly. I have had some difficulty here with certain varieties. Stirling Castle, Lord Suffield, Ribston Pippin, Cox's Orange, and Small's Admirable are a few which give trouble. All of these have readily yielded to root-pruning, lifting, and surface dressing.

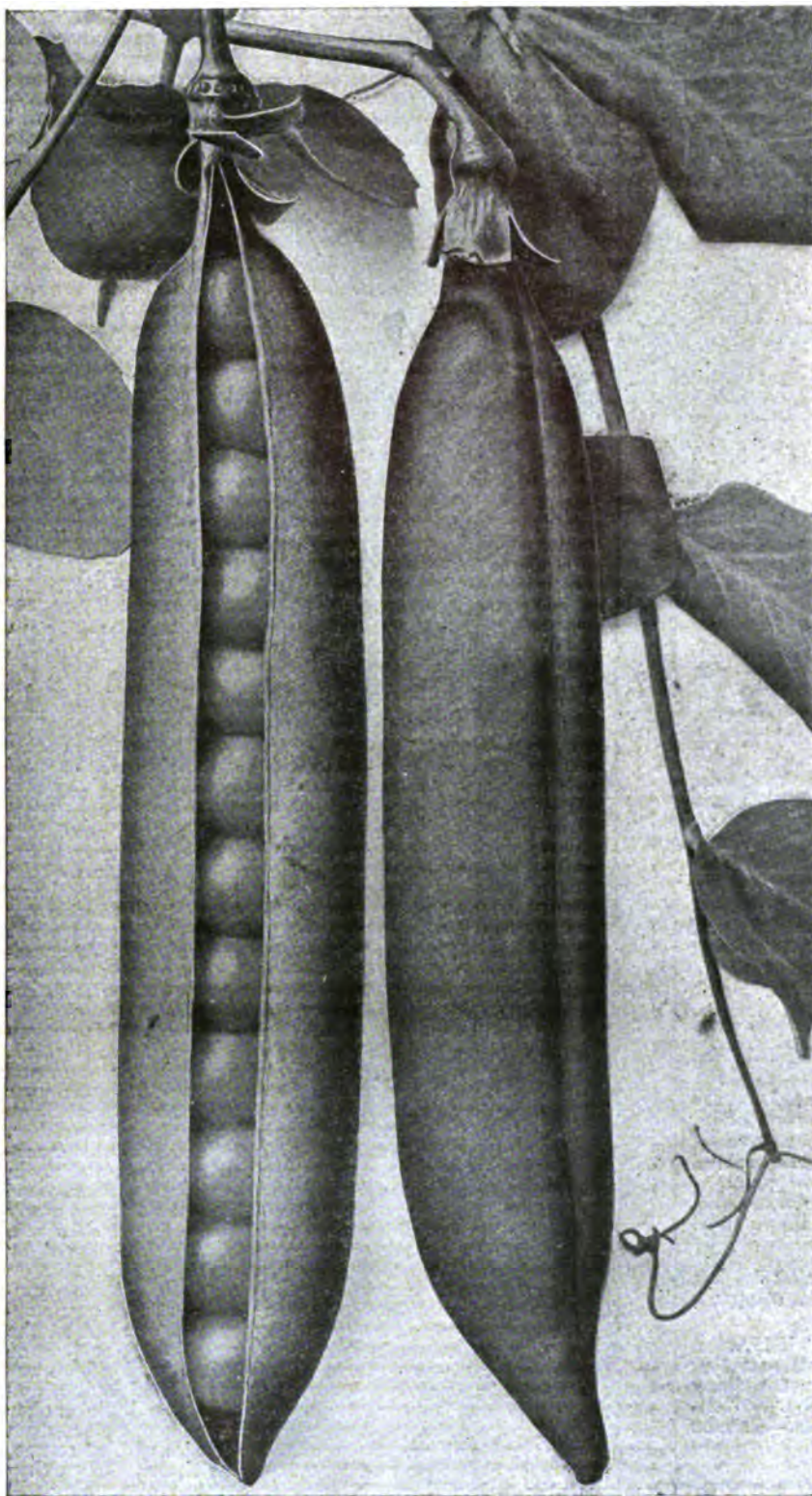
The chief cause of canker, I find, is deep penetration of the roots, and when one gives the matter a little thought, there is really nothing very astonishing about this. If we take the temperature of well cultivated soil at a foot deep, and at 2ft deep in the growing season, we shall find a very great difference, probably some 5deg or 6deg. This great drop in the temperature has an evil influence in more ways than one on the tree. The roots have evidently gone down in search of moisture, which is very low in temperature compared with that which is playing on the foliage. Again, at the depth of 2ft very little nitrate will be found by the roots, or at any rate, available; for we are told by those who should know that this very essential compound can only be obtained when the temperature of the soil is comparatively high, and all practical gardeners know this well enough. We all know how absurd it is to give pot plants ice cold manure water. In addition to the manure not being in an available condition the roots are chilled, consequently not in a condition to take up the manure in a proper form for some considerable time, during which time it is extracted from the soil by the atmosphere.

Now, what appears to me to be the outcome of this reasoning is simply this: the bark of the tree becomes contracted, and sooner or later must break at certain places on stem and branch. The tree is therefore enfeebled through lack of proper nourishment, or starvation. These wounds refuse to heal, as would be the case in a healthy tree, hence the disease, canker. I do not know whether Mr. Easter has noticed that this cracking of the bark often takes place early in the spring, and again in late summer or autumn; but these are my observations. One thing no doubt Mr. Easter has noticed, that as surely as newly planted Apple trees, which are worked on the Crab stock, make extra robust growth, so surely will this be followed by canker if something is not done to check the growth. We do not find Apples on the Paradise stock so prone to canker, provided they are annually surface-dressed with good soil. Sometimes, however, when a tree of extra vigour is worked on the broad-leaved Paradise stock, it is found necessary to root-prune or lift. At one time every tree in the kitchen garden here was badly cankered, and everyone save two were lifted bodily, and planted nearly on the surface; and although a little canker shows itself from time to time, these trees have never given very much trouble since. Some of the varieties will, of course, make more growth than one cares to see at times. When they are promptly dealt with, sometimes a moderate root-pruning will answer; but when this fails we ease the tree by means of planks, which are pushed under the ball, and in every single instance the canker vanishes. But let me say that every single Apple tree is annually top-dressed with a mixture into which burned ashes enter largely. The thing is to keep the roots near the surface, where all the necessary conditions are present.—THOMAS ARNOLD, Cirencester House.

Royal Horticultural Society.

JANUARY 14TH.

The exhibition on Tuesday last was again small, and nothing of outstanding merit was seen. The Floral Committee had no subjects before it seeking certificate, which constitutes a record



Culinary Pea "Quite Content." Copyright, T. Garter & Co.

in this direction. It certainly could not be less! The Orchid Committee alone awarded certificates—four F.C.C.'s and two A.M.'s. In the afternoon Mr. J. Gregory delivered a lecture on the Royal Horticultural Society's exhibitions.

Floral Committee.

Present: Mr. W. Marshall (in the chair); with Messrs. H. B. May, G. Reuthe, John Green, R. W. Wallace, Chas. T. Drury, Geo. Nicholson, John Jennings, Wm. Howe, Wm. Cuthbertson, Arthur Turner, Wm. J. James, Herbert J. Cutbush, Charles Blick, George Paul, Charles Dixon, J. F. McLeod, Jas. Douglas, Walter T. Ware, R. C. Reginald Nevill, and R. Hooper Pearson.

Messrs. James Veitch and Sons, Ltd., Chelsea, S.W., again filled the length of one table with stove and greenhouse flowering and foliage plants. They were good stuff, and admirably staged, comprising Roman Hyacinths, *Leonotis leonurus*, *Azalea indica* varieties, *Jacobinia chrysostephana*, *J. coccinea*, *Citrus japonica* in fruit, and other Orange bushes in flower, including *Citrus myrtifolia*. There were also *Cyclamens*, *Calceolarias* *Burbidgei*, and *Moschosma riparium*. (Silver-gilt Banksian medal.)

Messrs. John Peed and Sons, Roupell Park, West Norwood, S.E., had a similar display of small *Sempervivums*, mossy and encrusted *Saxifrages*, and *Sedums* in pots, to that shown by them at previous exhibitions. Some eighty kinds were included. The formation of rock gardens, by the way, is a speciality of Messrs. Peed's. (Silver Banksian medal.)

Messrs. Cutbush and Son, Highgate, again also a filled a table length. Half was devoted to hardy plants and dwarf shrubs, mainly in flower, the other half to Carnations and plants. The hardy subjects were arranged in a cork-bark imitation rockery, in miniature, and was very pretty. Among the subjects were several bulbous *Iris*es as *Histrio* and *Tauri*, with *Sternbergia hyemalis*, *Adonis amurensis*, *Primula megaseeifolia*, and *Potentilla alba*. The new Carnation Marmion was here. (Silver-gilt Flora medal.)

A few hardy plants came from the Misses Hopkins, of Mere, Shepperton, among them some double *Primroses*.

Messrs. Hugh Low and Co., Bush Hill Park, Enfield, were again strongly and well represented by Carnations, both the plants and cut flowers. The Rose-pink *Enchantress* was in fine form, and so were *Winsor*, *Salmon Lawson*, *Aristocrat*, *Mrs. Burnett*, and *Enchantress*. Their strain of *Cyclamens* were also on view. (Silver-gilt Flora medal.)

Mr. L. R. Russell, of Richmond, Surrey, filled a table with berried *Aucubas* in 5in and 6in pots—dwarf and bushy; also variegated *Ivies*, *Garryas*, *Eurya latifolia* variegata (all in pots), and the new greenhouse *Buddleia asiatica*, with white racemes. (Silver Banksian medal.)

Orchid Committee.

Present: Mr. Harry J. Veitch (in the chair); with Messrs. James O'Brien, de Barri Crawshaw, W. Boxall, F. J. Hanbury, H. Little, Jeremiah Colman, F. Sander, A. A. McBean, F. Menteith Ogilvie, G. F. Moore, H. T. Pitt, Walter Cobb, J. Charlesworth, W. H. Young, H. G. Alexander, H. A. Tracy, H. Ballantine, J. Wilson Potter, C. J. Lucas, Arthur Dye, and R. Brooman White.

Messrs. Heath and Son, Cheltenham, had *Cypripediums* (silver Banksian medal); and a similar small display came from Messrs. Hugh Low and Co. The latter's plants were particularly fresh and healthy, comprising *Cyp. Leeatum*, *Clinkaberryanum*, *C. chrysotoxum*, *C. nitens magnificum*, *C. Thompsoni*, also *Mrs. W. Mostyn*, and a splendid novelty in *Chapmani*, the flower being of good size and rich purple colour. (Silver Banksian medal.)

Fruit and Vegetable Committee.

Present: Mr. A. H. Pearson (in the chair); with Messrs. Jos. Cheal, J. W. Bates, Alex. Dean, Geo. Kelf, H. Parr, Joseph Davis, Edwin Beckett, G. Reynolds, Charles Foster, Owen Thomas, J. Willard, C. G. A. Nix, H. Somers Rivers, P. D. Tuckett, and A. R. Allan.

Messrs. Henry Cannell and Sons, Swanley, on this occasion contributed a highly creditable and excellent display of first-rate Apples, in a large assortment of varieties. The fruits were of the highest standard of excellence, and comprised, besides the best known kinds, such others as Small's Prince Arthur, May Queen, Schoolmaster, Leathercoat, Galloway Pippin, Christmas Pearmain, Betty Geeson, Wadhurst Pippin, Blue Pearmain, Norfolk Beaufin, Bietigheimer Red, Belle de Pontoise, Mrs. Barron, and Royal Russet. (Silver-gilt Knightian medal.)

Miss C. E. Martin, Willowbrook, Auburn, N.Y., received a silver Banksian medal for a collection of bottled fruit. The samples of fruit seemed perfect, so fresh and good and clean. They were in medium-sized (6in high) glass jars with firmly yet simply wired-tops.

F. Bibby, Esq. (gardener, Mr. J. Taylor), Hardwicke Grange, near Shrewsbury, staged a small collection of excellent Pears. The variety Olivier de Serres was deemed the best, and others were Glou Morceau, Bergamot Esperen, and Catillac. (Silver Banksian medal.)

Certificates and Awards of Merit.

Cypripedium Sultan (Major Holford, C.I.E., C.V.O.).—Parentage: Cyp. Mons. de Curte × Milo, Westonbirt var. Quite one of the best of its genus; a really superb flower. It is large and strong with firm, shining segments. The very large dorsal has a green ground colour, heavily blotched with rich deep crimson brown, the edge white. The petals are mahogany red, as is the lip, each being edged with a greenish-gold. From Westonbirt (grower Mr. H. Alexander) F.C.C.

Odontoglossum hybridum Bingleianum (Baron Schröder).—The parentage was unrecorded. This is a choice flower, beautiful and refined. It is of large size, some 2½in. wide and 3½in. deep. The form is close and good, each segment being broad, evenly and wavyly barred with rich brown over pale yellow. The lip has a white apex and rich golden centre. The petals and sepals are nicely waved and slightly crumpled at the apex. From The Dell, Egham (gardener Mr. Ballantine). F.C.C.

Cypripedium Minos Youngi (J. and A. McBean, Cooksbridge, Sussex).—Large spreading dorsal, with incurving edges, coloured green at the base, veined deep crimson, edging of rose purple, and white edge. The drooping petals are rich brown and the pouch is deeper coloured. F.C.C.

Lælio-cattleya × *Corunna* (Major Holford).—Parentage unknown. A larger and improved-looking Bowringiana, with rich crimson purple lip touched with gold inside. A.M.

Odontoglossum × *MacNabianum*.—Parentage: Harryanum × Wilckeanum albens. A strongly flowered plant, bearing an inflorescence of twelve very large and heavy flowers. A smaller raceme would undoubtedly be prettier. The flowers are maroon-purple, barred with white and buff. The segments are thick and sinuous. The fine large lip has a white apex and gold crest. F.C.C.

The Latest in Peas.

Not Sweet Peas this time, but something for the "inner man"! In Carter's Quite Content we seem to have "the last word" in culinary Peas. It is their latest introduction, and by them believed to be—well, unsurpassed at least. What the members of the R.H.S. Vegetable Committee thought of it was evidenced in 1906 when they awarded it a unanimous first class certificate. By the courtesy of the Holborn firm we are enabled to reproduce a full-size (and natural size) brace of pods, the open one displaying no fewer than twelve large peas! Ten peas in a pod is good; but twelve is super-excellent. We have seen and tasted the Pea, and can only say, as so many others have already said, that it is quite a giant in appearance and crop, and that the flavour is of first-rate quality. Mr. Gibson, of Welbeck, says that the pods fill best on a moderately rich soil: "the large pods are more readily filled than when too strongly grown." It is well to bear that fact in mind. From Messrs. Carter's seed catalogue we find that as an exhibition variety this Pea won first prize at fifty-six shows last year, including first at Shrewsbury. It is the outcome of a cross between Alderman and Edwin Beckett. "In general character it resembles the former, but the pods are considerably larger than either parent. . . It is exceedingly prolific, and the pods hang mostly in pairs. Height, 5ft to 6ft."

A good deal has been written about sowing Peas in trenches, but I go in the opposite direction and sow on ridges. We have a nice warm border on which the early crops are usually grown, but the soil is terribly stiff, and the spring crops grown in it require considerable coaxing. By liming, manuring and ridging, we meet the case.—H. MANN.



New Apple, Rev. W. Wilks.

This Apple was raised by Messrs. Veitch and Sons, Ltd., at their Langley Nursery, being the result of crossing Peagood's Nonesuch with Ribston Pippin; and it is named in honour of the enthusiastic secretary of the Royal Horticultural Society. The specimen illustrated measured 14in in circumference and 4½in in depth. The skin is pale yellow, striped with red; the flesh has a brisk pleasant flavour. It has proved a cooking Apple of first-rate quality. It is in season during September, October, and November, and the large handsome fruits were greatly admired when shown at the exhibition of British-grown fruit in October last. It was placed before the Fruit Committee on September 9, 1904, when it received an award of merit. The tree has a robust constitution, and is a free cropper.—B.

Market Grapes.

A few lines as to the Vines. Old-established rods ought to be well cleaned after the house washing. As red spider is the pest that is ever present, more or less, the rod should be well



Apple, Rev. W. Wilks (½ size).

sprayed with Hamilton's spider killer. In known cases of bad attacks I should also recommend a hand brushing of the same insecticide. While not in favour of bark cleaning, only taking away that which comes off readily with the hand, every precaution should be taken to thoroughly spray or wash, so that the rod should be well soaked. Neither insects or eggs can be killed unless the mixture gets to them. Gishurst compound I have used from the first year of its introduction, a safe and effectual remedy if well applied; but I now give the preference to Hamilton's, as the liquid appears to soak in quicker. Clean and top-dress the border according to requirements. Inside borders can be more effectively worked all through the bad weather.

The exigencies of trade are such that in many instances the vinery is only such by name, being a receptacle for so many purposes. There is a line, however, to be drawn, as experience only illustrates the stern fact that not only best Grapes, but also the best crops are from houses which have been correctly treated all through the season. Of the market varieties, the first on the list is the still good old Black Hamburgh. The last two or three years has seen a more extended growth of this variety, not only for the early May and June supply, but also for the autumn, up to October, market. All Hamburgs must

be good to command a market, but with regard to the later autumn supply, large bunches are a necessity. Anything less than 1 lb in weight means a cheap 6d., or even less, per lb.

Early in the year some will be starting the first houses of Alicante. There is always a demand for these in June and July. Here, again, good bunches are desirable. Gros Maroc is still grown by many, a good early colouring market Grape, but requires hanging to sweeten. As to Gros Colman, Worthing growers begin these with the new year, a long six months' culture, to have them ready for early July. Later houses are started as required; the last, from which Grapes are cut end of March, breaking naturally, but the houses must then be fired.

Muscat of Alexandria.—Early houses (and here Worthing comes in well) to be started at the end of December, so far as the south is concerned. End of February suits the majority of suburban and country growers. This Grape, with the lighter crop, pays well.

Canon Hall Muscat.—So far as my observations go, the bulk for crop are grown in Middlesex and Herts. Finchley takes the lead, not only for the bulk, but also for quality. There is ever a query about the cultivation of this later, fine-berried Grape. Certainly it does not follow that when Muscats do well, Canon Hall does the same, or we should see better results from Worthing. Soil cannot be only factor; if so, it is because it is heavier in texture than is good for the true Muscat.—STEPHEN CASTLE.

A Colorado Fruit Farm.

The writer recently visited the Madison Fruit Farm, a few miles north of Denver. Technically owned by a private incorporated company, almost all the stock in the company is owned by Mr. C. B. Kountze, president of one of the leading national banks in Denver, who takes the same personal interest in such fruit farm that Lord Rothschild does in his famous Mentmore fruit farm. The Madison fruit farm comprises 613 acres, of which 315 acres are already in fruit, 150 acres under cultivation in forage and grain crops, 20 acres in reservoirs, and the remainder of the farm, as yet, as the buffaloes left it. Of the 315 acres in fruit, over 100 acres are in Cherries, representing about 9,000 trees, of which 4,500 were planted nine years ago, while the remaining 4,500 represent various plantings since. The varieties grown are Dyehouse, Montmorency, Ostheimer, English Morello, Wragg, Suda, Sixteen-to-One, Early Duke, May Duke, &c.

The Cherry crop last season was somewhat below the normal, mostly in consequence of a severe hailstorm. In 1904, 12,000 crates (a crate holding twenty-four one-quart boxes) were shipped, mostly to cities east of here, such as Chicago, St. Louis, Kansas City, &c. The ordinary American freight box-car holds 600 such crates, so that the Cherry shipments from this orchard in 1904 represented twenty such cars. There are nearly 200 acres in Apples, representing about 12,000 trees, of which about forty acres were planted nine years ago, and the rest represent various plantings in subsequent years. The varieties grown are Delicious (1,500), Black Ben Davis (1,500), Ben Davis (1,000), Jonathan (1,000), Grimes' Golden (500), Winesap (500), also Mammoth Black Twig, Champion, Maiden Blush, Rome Beauty, Newton Pippin, Missouri Pippin, North Western Greening, Wealthy, &c., Florence Crab, &c. There are fifteen acres in Plums, the oldest planted nine years ago, and the others since. The varieties grown are Pond's Seedling, Lombard, German Prune, Hungarian Prune, Bradshaw, Damson, Shropshire Damson. There are also two acres planted to Red and White Currants, and one and a half acres to Gooseberries.

A few remarks as to the climatic conditions of this fruit farm will interest English readers. Denver is 5,196 ft above sea level, and the Madison fruit farm is possibly 200 ft higher than Denver. At Davos Platz (altitude 5,200 ft), in Switzerland, there is only a growth of Pine trees and dwarf Willows, and Potatoes and Rye mature with difficulty. At Davos Glaris (altitude 4,900 ft), in Switzerland, Cherry trees blossom but cannot ripen fruit. According to the observations of the U.S. Government Signal Service Bureau, as to Denver and its immediate vicinity, including the fruit farm in question, the average temperature is 49.1 deg (the average maximum being 72.2 deg, and the average minimum 19.7 deg); the average annual precipitation (including rainfall and melted snow) only 14.95 in; the average number of days per annum on which rain or snow fall, 81; average sunny days per annum, 340. The special local features therefore are altitude, semi-aridity, and abnormal sunshine.

Major Glassford, signal officer, U.S. Army, says: "The altitude of Denver and the dryness of the climate minimise the heat to the extent of 22 deg; in other words, from the recorded temperature subtract 22 deg to find the real sensible summer heat. When the published record of the heat in Boston, New York, Washington, St. Louis, and Chicago is over 100 deg it is simply unbearable; while the same recorded temperature at Denver is attended with little discomfort. Why? Because in

the cities above mentioned moisture is present to a very considerable extent in the atmosphere, while in Denver it is almost absent." The altitude and dryness similarly minimise the cold of winter.

The semi-aridity necessitates the availability of artificial irrigation at the Madison fruit farm, hence the before-mentioned twenty acres of storage reservoirs on the highest part of the farm, into which water is pumped from an irrigating canal (furnished by tapping Clear Creek as it debouches from the Rocky Mountains) by a 40 h.p. gasoline engine with capacity of 960 gallons per minute. There is also an artesian well, the water from which is pumped by windmill. Every tree on the farm can therefore be irrigated if and when necessary. The maximum of intensive cultivation, however, is practised, being found to practically dispense with artificial irrigation. In the whole 315 acres of fruit there is not a weed, in consequence of periodical, comparatively short interval, cultivation with disc harrows, &c.

As a protection against the hot sun and rodents, the stems of young trees are protected by tubes of Elm veneer. Low branching is also encouraged to protect the stems from the sun, as well as to facilitate fruit gathering, high step-ladders being so far all-sufficient. The average number of men regularly employed on the whole farm the year round is fourteen, irrespective of fruit pickers, which latter, in the busy season, range from 100 to 150 at a time, who are paid by piece. The farm is well equipped with ample, substantial, and well-kept buildings for the housing of the employees, stables, implement sheds, &c., also a cold storage warehouse, two storeys and basement in height, equipped with commodious lift, such building being 150 ft long by 50 ft wide, with storage capacity for 40,000 boxes of Apples of one bushel each. A spur from the Colorado and Southern Railroad runs into the farm to the cold storage warehouse, admitting of the shipping of fruit direct by railroad to distant cities. The fruit crops are usually marketed through a wholesale fruit firm in Denver, who designate the respective destinations of the loaded cars. The railroad spur is also utilised to bring on to the farm large quantities of fertiliser, notably the accumulations of the sheep-folds in Eastern Colorado, where hundreds of thousands of sheep have for many years past been grazed on the, as yet, open plains. It has taken the financial resources of a banker to establish this interesting and extensive fruit farm, but its remunerative value, as a sound investment, will steadily and very satisfactorily increase with each succeeding year, while that of a gold mine decreases with each ton of ore extracted.—THOMAS TONGE.

Pruning Young Vines.

It is a common occurrence to see established Vines growing on the spur system with irregular main stems, certain parts of the rod, say 6 ft, or sometimes more from the base, smaller than it is below and above, and with the shoots growing from it there much weaker than those above or below. This is what I term a weak spot in the rod, and from which the bunches are inferior in size and the fruit smaller. A perfect rod, grown on the spur system, which is the more common and perhaps the more useful, should taper gradually from base to apex, and should produce its bunches evenly its whole length, or if there is any difference the larger should be from the spurs near the base when the Vines are, say, twenty years old. Previously, perhaps with vigorous growing Vines, the larger bunches were more often obtained from the leader, if this were allowed to carry fruit; but seldom are the bunches so shapely as those from more fully matured parts of the Vine. There should be no difficulty in inducing Vines to carry a full crop of fruit at thirty years old as fine as during any previous year. I fear this cannot be said of all Vines. Too many are expected to produce huge clusters for exhibition, that it is much too common an expression that Vines after fifteen or twenty years' service are useless, and must be replaced.

Weak or irregular stemmed Vines are the result of mismanagement, generally traceable to faulty pruning during the first few years of their growth. Too many persons are anxious to see the trellis covered as quickly as possible, inducing the Vines to give a full crop in the shortest possible period. This may be interesting as long as it lasts, but what is the future to be?

To make myself quite clear, in avoiding what I condemn as bad practice, it will be well to take the Vines after the first season's growth following planting. Assuming, then, that the Vine started its growth from the base whence, as a pot plant, the first growth sprang, this would be on a level with the border, the growth having progressed up the trellis to the top of the house or nearly so the first year, say to a length of 15 ft. A greater length of rod should not be allowed to remain at the first pruning than will provide one pair of side shoots and a leader, which means that the canes should be cut back to within three buds of the first wire, which is generally

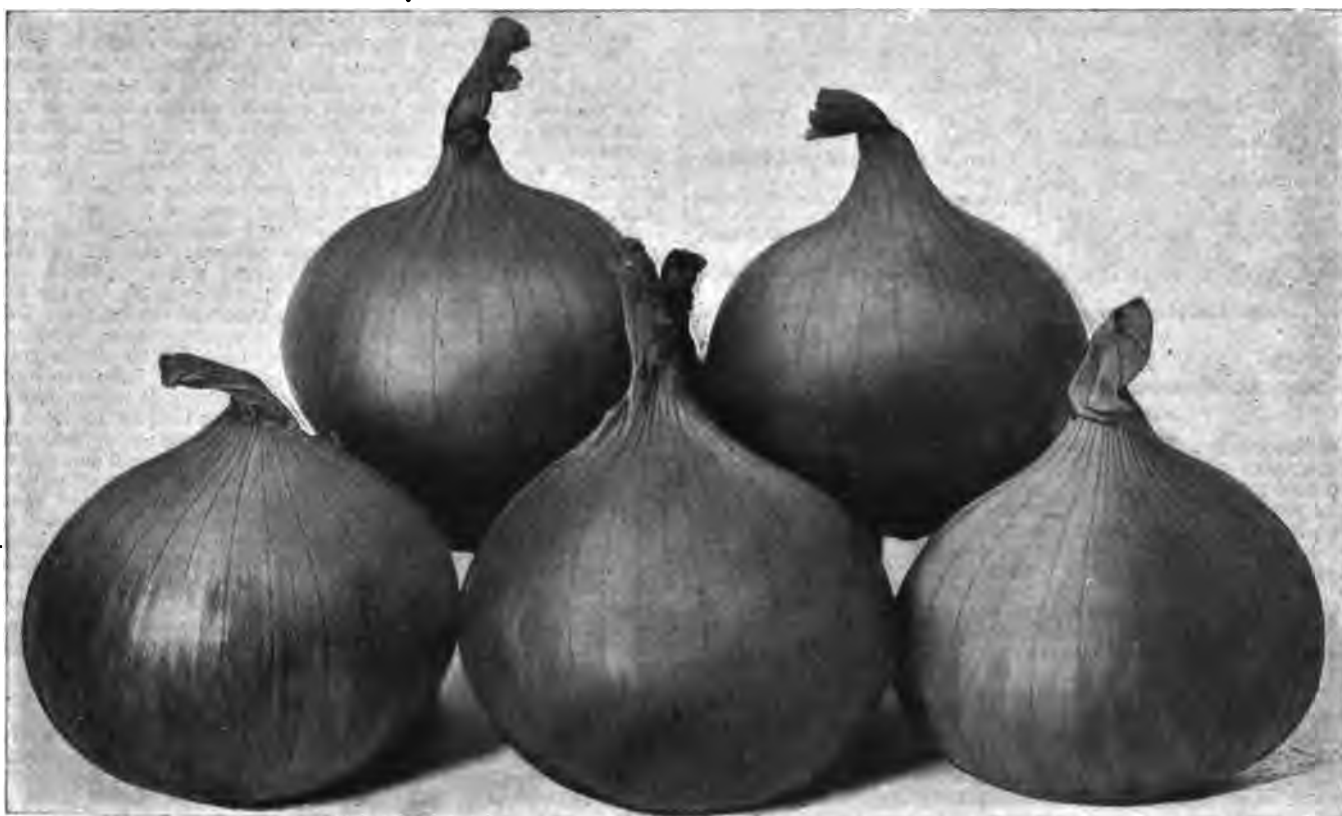
placed about 2ft from the border according to circumstances. It is more than likely that one bunch of fruit will show on each side growth resulting from the pair of eyes retained at pruning time, and upon the leader also, for the matter of that; but it is never good policy to allow the leading growth of young Vines to carry even one bunch of fruit. It is better for their future progress, for their strength to be spent in growth rather than in perfecting fruit upon their leaders.

Assuming then that two bunches are sufficient for a Vine to carry the first year, why should it be allowed to extend more rapidly? its strength is being concentrated at its base for future use. The pruning the second year should be carried out on similar lines. Some leave 6ft of rod, or even more, the second year, the idea being that the rod will the more quickly be covered, and a full crop of fruit be the result in a shorter space of time. The consequence of this proceeding is that the eyes nearest the top break strongest, and grow in the same way the whole season; the eyes nearest the base often refuse to start at all; while many of those in the middle of the cane grow very

often sees heavy crops of fruit upon it, possibly after some amount of root-pruning or after it has exhausted its youthful vigour. Therefore, though not one of the most prolific, it must be regarded as a fair bearer, and this is confirmed by the fact of its being included in the list published by the Royal Horticultural Society called "Fruits for Cottagers."

As regards time of flowering it is about midseason, averaging about a week later than Louise Bonne of Jersey, and a week earlier than Marie Louise. It produces large trusses of blossom, which may be advantageously thinned on cordons and small trees. In a normal autumn this Pear is in season from the middle to the end of October, and therefore comes between the two varieties named above. It is an extremely melting Pear, very sweet and deliciously perfumed at its best with an aroma as of rose water. It has received very high praise, such a severe critic as the late Mr. R. D. Blackmore saying that it was a "very fine Pear, and very highly bred."

For anyone wanting a fine specimen pyramid tree for the edge of a lawn I can recommend no better Pear than this, its



Onions, Clibrans' Exhibition.

weak, and can be picked out ever after as the result of allowing too much length of leader. These weakly grown shoots too, never produce foliage of the same strength as those above and below. The wood also fails to mature, which is a sign of weakness, displaying ever afterwards the gaps which I pointed out at the commencement.—E. MOLYNEUX.

Beurré Hardy Pear.

This excellent autumn Pear was raised by M. Bonnet, of Boulogne, who dedicated it to the late M. Hardy, Directeur of the Gardens of the Luxembourg. Its appearance, at least, is familiar to most people, being of rather roundish form, russety tending to red on the sunny side, and when well grown turns the scale at half a pound, though more often running four or even five to the pound. In growth it is one of the handsomest with its large broad shining leaves and robust upright growth. It makes a very large pyramid and a fine standard on the Pear stock, and a handsome pyramid and good cordon on the Quince. It also makes a good espalier for a wall. Catalogues mention its handsome vigorous growth and abundant bearing. The two things do not generally go together, and this is no exception, for in my experience it is not remarkably prolific, bearing but little until it has had pretty severe root-pruning, a fair show of blossom often producing but a very moderate crop of fruit. One

foliage and growth being more handsome than that of many trees grown for that alone, while the russety crimson fruit, though not highly coloured like some, is still very handsome, as much in its shape as in its colour.—A. PETERS.

Onions.

Clibrans Exhibition.

These esculent bulbs have been the objects of especial or pet attention from cottagers, single-handed gardeners, and indeed from gardeners of all degrees for generations past; and the cult of the Onion is quite in as healthy a state now as ever. Hence the numbers of "improved" and "selected" forms of standard sorts, such as Ailsa Craig, James's Keeping, and Cranston's Excelsior. We bring to the especial notice of our readers a specialty of Messrs. Clibrans (Altrincham)—their Exhibition Onion. The bulbs are figured on a reduced scale, but they are of perfect shape, with globular, even outline, thin necks, and smooth skin. This is a good exhibition Onion. It grows to an immense size, is of heavy weight, good flavour, and is an excellent keeper.

Young Gardeners' Domain.

List of Prizewinners.

The following is the list of prizewinners for the past year. What are our young Scottish friends doing?

Arnold, Ralph E., Cirencester House, Cirencester, Glos.	Hartless, A. J., Waterlow Park, London, N.
Ashton, H., Cleveley, Allerton, Liverpool.	Larking, A., Baldersby Park, Thirsk, Yorks.
Brine, Geo., Bear Wood, Wokingham, Berks.	Little, T., Gorddino, Llanfairfechan (won twice).
Brookfield, F., Headford House, Co. Meath.	Little, W. B., Kew.
Cave, F., late of Duffryn, near Cardiff (won three times).	Marcham, G., Southgate House, Southgate, Middlesex.
Dack, W., Blackmore Park, Hanley Swan, Worcester.	Merry, G. F., Cottrell, near Cardiff.
Davies, W., Dunston Hill, Stafford.	Mitchell, C., Well Green Estate, Lewes, Sussex.
Durbridge, Geo., Oakley Hall, Basingstoke.	Prentice, H., Hartpury House, Gloucester.
Friend, W. G., Cliveden, Taplow, Bucks.	Renwick, W., Pipe Gate, Market Drayton.
Fuller, F., Newnham Paddox, Brinklow, Warwickshire.	Richardson, W., Stoke Park, Guildford, Surrey.
Gardner, J., Eaton Hall, Chester (won twice).	Simms, J. E., Northwick Park, Blockley, Worcestershire.
Godwin, J. D., Cleveland Road, Southsea.	Stevens, H., Sutton Place, Guildford, Surrey.
Good, H., Dover House, Rochampton, W.	Scott, E. J., Aldenham House, Elstree, Herts.
Grey, Ernest, Aske Hall, Richmond, Yorks.	Sparks, F. W., Copped Hall, Epping, Essex.
Habgood, E., Beech Hurst, Hayward's Heath, Sussex (won twice).	Vickery, A., Welbeck Abbey, Worksop, Notts.
Harding, Cyril, Regent's Park, London, N.	Watson, Donald, Sutton Place, Guildford (won twice).
Hay, J., Welbeck Abbey, Worksop, Notts.	Wire, E. B., King's Walden Bury, Hitchin, Herts.
	Yandell, Wm., Longford Castle, Salisbury, Wilts.

. The prize is awarded to Mr. Norman Bruce, The Nurseries, Chorlton-cum-Hardy, for his letter hereunder.

A Day at the Market.

It has often surprised me that amid the innumerable subjects written about by my colleagues of the "Domain," none have told us anything about the buying and selling of flowers in the market. That is the subject I will try briefly to discuss. I live in one of the suburban districts of Manchester, or what the southerners call the "City of Rain." It has been my "privilege" to get up at two o'clock in the morning, and walk five miles to work at this busy market. On leaving the suburban roads, and getting into the town, we find ourselves in the midst of railway carts bringing in consignments from the English, French, and Guernsey growers. Porters are hurrying to and fro as if they hadn't a minute to spare. Everywhere is noise and bustle. What with the banging of the hammers and the shouting of the porters one would think the market had been open all night, so busy is everybody. At five o'clock the market is in full swing, and all the streets round about are filled with hawkers and suburban shopkeepers' carts. The salesmen are as busy as bees, unpacking boxes and selling at the same time. And the sightseer declares it is marvellous the amount of business done in such a short period.

I think the part the stranger likes best is listening to the buyer and seller arguing how much is wanted for a certain lot. It generally goes something like this: "How much do you want for this lot?" we hear the would-be buyer say. "Ten-and-sixpence," says the man behind the boxes, "and I'll bet my bottom dollar they are the best on the market." "I'll give you nine-and-sixpence," says the bargain-hunter, who tries to get everything as cheap as he can, for the cheaper he gets it the more profit he makes; "So-and-So is offering his at 9s., and there isn't much between them." This seems to get the man behind the boxes a bit vexed, and he will remark, "Well, you can either take them, or leave them for somebody who knows good stuff when they see it, and who won't keep a chap wasting his time for a bob." At this the buyer becomes highly indignant, and walks away to see if he can find better stuff; and the stranger will say that that salesman has lost a customer. Oh, no! the salesman knows better, for in a few minutes we see our former friend with his hand in his pocket, asking: "How much did you say—10s. 6d.?" "Yes," replies the salesman, "are you going to clear them out for me?" "Here's ten," says the purchaser, and he takes the stuff up with a "Good-morning," and a smile on his face, and off he goes with a satisfied feeling, thinking he has got the better of the salesman for once. If you took a walk to the same salesman in an hour or two after, you would hear him asking only half as much for the same stuff.

Another trick of the salesman is to send one of his men round the market to see if others have got anything that is not in quantity on the market, and if it so happens that he

alone has something special, he will only show a few at a time, and so get the price he asks, and as soon as the purchaser gets out of sight, up comes another box to fill the place of the first. Of course, this is not done by all, as most salesmen are "straight" with you, if you are "straight" with them.

When the fingers of the clock work round to nine, the wholesale department is getting quiet, and waiters from the adjoining restaurants are running about with tea, coffee, &c., for the well-earned breakfast of the salesmen.

What has been going on in the retail department all this time? They have been busy setting out their stalls and blending the colours so as to make the stall as effective as possible, and so catch the eye of the ladies and gentlemen that pass by. A smile passes over the stranger's face as he goes down the lines of blasing splendour, and passes the flower girl who is trying to outwit her next door neighbour, as she asks, "Are you wanting flowers, or a nice buttonhole, sir; or a nice wreath, lady?" and so on. It is needless to say that the gentleman who wishes to purchase a buttonhole always has a sly look to see which girl is most attractive and superior. So the salesman who has the best girls gets the best trade!—N. BRUCE, Chorlton, Manchester, age 18 years.

Cotoneaster horizontalis.

This splendid dwarf growing shrub will no doubt be at its best in most of our gardens, its brilliant scarlet berries and foliage showing up with a marked effect. It is doing remarkably well in the North here in a rock garden, some of the main shoots having attained the length of 7ft or 8ft from the centre of the tree. These are literally packed with berries. Of course, various aspects make a slight difference. The best of them here are facing south, in front of the rockwork. The plants when first put in want a nice compost of loam and a little manure, which they revel in. I should advise when planting to take out a hole in the pathway, and fill in with the above mentioned compost. Having got a roothold, the plants will soon make growth, and a very good facing for the front of your wall, which probably is about 2ft in height. This is about the usual height to which the plants attain, being, as its name indicates, of a spreading nature. As the plants grow naturally the shoots will be likely to come away from the wall. To keep them in position all that is necessary is a peg driven in the ground and the shoots carefully tied down to it. If this is done you will soon have a very pretty, compact, and neat front to your rock wall, seeing also that any odd straggling shoots are kept out back in position. To raise the stock of this lovely shrub is not a very difficult matter. This can be done very easily by layering; in fact if the shoots are allowed to run along the ground they very soon begin to take root in their ordinary course of growth. There are several sorts of the Cotoneaster which are very useful for answering the same purpose as the above, these being *C. microphylla*, white flowers and crimson berries, the leaves being of a very dark green; *C. glacialis*, miniature evergreen species, and *C. thymifolia*, a very low-growing form with crimson berries.—T. L.

A Rockery Under Glass.

Although the formation of rockeries is almost an art in itself, it comes very often under the scope of the average gardener, so a treatise under this heading will not be out of place in the "Domain." On speaking of rockwork under glass, I mean those rockeries that hide unsightly green or moss-covered walls frequently seen in cool houses, such as conservatory, greenhouse, and cool orchid house, or fernery. Before constructing a rockery much depends on the situation, therefore the design must be previously thought out and kept in the mind's eye. For instance, many cool orchid houses are lean-to's at the north side of a wall. Presuming the orchids are staged close to the glass, the space under the wall, which is very often cool, will meet the requirements for a rockery. The site found, commence with the rockwork on a sound base, that there may be no subsidence after completion. Then start placing the boulders, previously having a good bank of open soil almost to the desired height, which will come in useful to keep the rockstones in their position as the work proceeds. These should be placed as irregularly in outline as possible, so that they impart a natural appearance, leaving plenty of crevices and pockets for the reception of plants. In some localities good stone for this purpose is very difficult to obtain, but quarry and fossil stone suit very well, though I would choose a weathered stone for preference—those found in the fields and have become grown over with lichen. It is not advisable to build it up any higher than 4ft or 5ft, keeping it under the eye.

The plants suitable for rockeries are not necessarily to be alpine, because this kind of plant requires a certain amount of sunshine. The following lend themselves properly: *Rex Begonias* (not too many of these, as the leaves are large, although the markings are very effective). You may have a verdant carpet at the bottom of *Selaginella Martensi*. This will also do in some of the crevices, and will soon cover any of the stones showing too much face. The Coral-plant will do equally well, and if you can get it to bear seed it will prove all the more

attractive. *Asparagus deflexus* and *Abutilon megapotamicum* both grow well, and would come in useful for vases. Grey foliaged plants are striking, and contrast with the others. In these there are *Echeverias* and *Sedum Sieboldi variegatum*. *Adiantums* will be most serviceable; the rhizomes of *A. Capillare Veneris* have a tendency to cling to stones. On the top may be planted a small tree-fern or two. Orchids of the *Cypripedium spectabile* and *acaulis* type are choice; *Disa grandiflora* also, but bear in mind when such as these are planted to add some peat to the mixture to put around the roots. To this list of plants may be added some that flower, as *Primula Forbesi*, the flowers of which are a pleasing shade of mauve. In conclusion, I can say that a rockery after this manner would give the highest satisfaction to employer and employed.—C. C. Sandy, Beds.

Lydhurst Gardens, Sussex.

These noted gardens are well worthy of a visit at any time, as they are representative in the fullest sense of the word. A gardening friend and myself paid them a visit recently, and found them instructive in many ways. Mr. Evans, the late foreman and now head gardener, was only too pleased to show us round his charge. The glass is compact and rather extensive, four new span-roofs of first-rate design being in the course of construction. These we were informed would be devoted to batches of plants in each house, not, as is the case in several gardens where one kind of treatment has to suffice for many varieties of plants, to the detriment of all. The chief feature in the plant houses was a first-class batch of *Begonia Gloire de Lorraine*. It would be difficult to find better. The parents of the present plants were awarded the R.H.S. gold medal last year; and anyone who saw them on that occasion will remember what a grand display they made. The method of raising is from leaves, taken off with a little of the old bark and placed lightly in leaf soil, with a sharp heat. Here they root readily and vigorously. All the other plants were looking well, some extra good examples of *Euphorbia jacquiniæflora* being noticed. These had not been coddled in any way, having been grown in a Peach house with plenty of air. *Musa Cavendishi* is well grown, a small lean-to being devoted to their culture. At the time of our visit a good bunch of "fingers" was ripening.

Figs are well grown in great variety. Cherries inside had been remarkably fine, their prolific cropping being attributed to cool treatment and a thorough ripening of the buds in the autumn. Peaches are also well grown. Instead of being planted in the orthodox manner, they are planted parallel with the rafters. One advantage of this method is more light for the plants at any time.

The pleasure grounds are well kept and are extensive, a large amount of money and skill having been expended upon them. Bamboos and conifers in variety, also a very fine collection of Camellias are grown, everything being properly and distinctly labelled. *Lapagerias* we saw flourishing outside on a north wall. Both alba and rosea were equally strong. The rock garden is small but well furnished. There is a fine bothy here, having six bedrooms, one for each man; a large comfortable sitting room, bath room, electric light, and every other convenience. Before closing this brief account I must mention the tool shed. There is a place for everything, and all tools are oiled on Saturday and put in their places clean, ready for work on Monday. What a contrast to some gardens of note I have visited. After thanking Mr. Evans for his hospitality, we strolled home through the Sussex woods.—G. MILLER, foreman, Mereworth Castle Gardens, Kent.

Work for Wet Days.

This subject may appeal to some of my fellow readers as a matter of general knowledge. No doubt it is so, but at the same time I thought a few hints on the same would not be out of place. When much wet weather is experienced it is sometimes a rather difficult task to find work enough for a large staff of workmen, but this difficulty may easily be overcome I think, if a few of the following items are made note of. In the first place I may mention stakes. We all know what an important part the stake plays in the garden, and the tremendous quantities used in some places. When the borders are cleaned in the autumn the stakes are generally thrown together and tied up in a rough and ready sort of fashion, just for the time being. Herein lies the work for wet days. They can all be put in their proper sizes, and all those having broken ends can be resharpened, ready for the next season. Then again, where wall fruit and pergola work is a big factor, there comes the matter of shred-making. This was the case in my last place, and I found it made work for many days, as a sackful or two require much time to cut. Then there is the re-mending of fruit nets, as these generally get torn during the season. The making of labels is another very important item too, as we all know what the labelling of plants means to us. Of course, I could mention several more items which comprise my subject, but the main object of it is this—willing workers can always find something to do through wet days.—T. TELFORD, Lowther Castle, Penrith, Cumberland.

Publications Received.

Onions, by Horace J. Wright. London: Agricultural and Horticultural Association. Price one penny.

Climbers, by T. W. Sanders, F.L.S. London: Agricultural and Horticultural Association. Price one penny.

Commercial Fertilisers, by John S. Burd. Bulletin 189. College of Agriculture, Berkeley, California.

California Peach-blight, by Ralph E. Smith. Bulletin 191. (Address as above.)

The Brown-rot of the Lemon, by Ralph E. Smith. Bulletin 190. (Address as above.)

Lining of Ditches and Reservoirs to Prevent Seepage Losses, by Elwood Mead and B. A. Etcheverry. Bulletin 188. (Address as above.)

Kew Bulletins. The following have been received:—No. 9, 1907. Contents: Some notes on a journey from Walfish Bay to Windhuk. Diagnoses Africanæ. Additions to the *Forula Marmarica*. Calabash tobacco pipes; and various miscellaneous notes. Price 5d. No. 10. Contents: The gums ammoniac of Morocco and the Cyrenaica; Visit to Newport and South Wales; Zapupe fibre plant; additions to the wild fauna and flora of the Royal Botanic Gardens, Kew; title page, contents, and index to volume for 1907; miscellaneous notes, price 5d. Appendix iv., 1907. List of staffs in botanical departments at home, and in India, and the colonies, 1d. Appendix v, 1907. List of Kew publications, 1906-1907, price 4d. Appendix i., 1908. Supplies for public service:—List of seeds of hardy herbaceous plants, and of trees and shrubs, price 2d. Each of these can be purchased either directly or through any bookseller, from Wyman and Sons, Ltd., Fetter Lane, E.C.; or Oliver and Boyd, Tweeddale Court, Edinburgh; or E. Ponsonby, 116, Grafton Street, Dublin.

Hints on Planting Roses, by a committee of the National Rose Society. Sixth and revised edition, 1908. Post free for seven stamps, from Mr. Edward Mawley, Rosebank, Berkhamsted.

The Estate Magazine, December, 1907, 6d. Contents: Baron Hothfield's estates; agricultural chemistry; agricultural notes; cattle fattening; Cockle Park sheep-grazing tests; electrifying the fields; trimming evergreens; forestry planting tools; garden crops in 1907; grades of gardeners; improvement of poor grass land; the food of gulls; the horticultural trade; lady gardeners; pheasants, December; pheasants, Mongolian; the colony system of poultry keeping; the pupils' column; the erection of an estate saw bench; tar-macadam in North Wales.

Symons's Meteorological Magazine, December, 1907. The issue contains meteorological notes on November; temperatures and rainfall for November; a long article on Greenwich air temperature, by Mr. W. Ellis, F.R.S., illustrated with diagram; also a report of the Royal Met. Soc., and letters and reviews. Price 4d.

The Orchid Review, December. Chief contents: Calendar of garden operations for December; *Dendrobium formosum*; *Odontoglossum grande*; reports of R.H.S. and Manchester orchid shows, and various smaller notes. Price 6d.

Agave macroacantha and allied Euagaves, by Mr. W. Trelease (from the 18th annual report of the Missouri Botanical Garden, November 27, 1907.)

Additions to the genus *Yucca*, by W. Trelease (as above.)

Journal of the Board of Agriculture, December, 1907. Contents: Improved grain-drying sheds, G. W. Constable; experiments with the milk of newly-calved cows, Professor D. A. Gilchrist, M.Sc.; water supply for villages; the British crops of 1907; cultivation of Lavender; cultivation of brewing Barley; the Corn Marigold; "Fairy Rings" and their eradication; the use of Felspathic rocks as fertilisers; live stock import regulations—Natal; feeding pigs on Maize and Maize-meal; imports of feeding stuffs into Germany; American Gooseberry mildew (with coloured illustration); American Gooseberry mildew in Worcestershire; insect agencies as a cause of Larch canker, James Scott; beetles in a malt house; store beetles infesting a warehouse, *Chrysanthemum* leaf-mining fly, *Sciara* fly in Savoy, aphides, Oak spangle gall, mites, springtails, *Gordius* worms, ergot of Rye, diseased Gooseberry bushes and *Chrysanthemums*; the indebtedness of the peasant class on the Continent; Notes on crop prospects abroad: Germany, Poland, Trans-Caucasia, Roumania, Bulgaria, Norway, Argentina, Canada, Queensland, Warsaw Hop fair, Hop crop in Germany; and miscellaneous notes, price 4d. monthly.

The Practical Use of Starters, by L. D. Bushnell and W. R. Wright. Department of bacteriology and hygiene, Michigan State Agricultural College, June, 1907.

Agricultural Economist and Horticultural Review, January, 1908. Price 6d.

The Albion Magazine, edited by Evan Yellon. A monthly magazine for the deaf, but containing sundry matters of general interest. No. 1, vol. 1, November, 1907. Price 2d.



Fruit Culture under Glass.

THE EARLY PEACH HOUSE.—The trees in this house will now be making good progress, and care must be taken in severe weather to avoid a high night temperature; indeed, it is not well to give this in the day either. At the same time this does not apply to sun heat. The latter will do much good and strengthen the blossoms. Some of the older kinds of Peaches and Nectarines flower so profusely that I have found it advantageous to remove any misplaced and thickly crowded blossoms. This strengthens those left, and benefits the trees, but I do not advise this treatment for the early American varieties, such as Early Alexander, Amsden June, and others. These are very different, and are prone to cast their buds. The temperature should be 50deg to 55deg during the flowering stage, and every advantage must be taken in bright weather to set the flowers, doing the work about midday when the pollen is dry, and give a little top ventilation whenever possible.

SUCCESSION HOUSES.—In houses where the roots have been given ample moisture since the fall of the leaf, and are ventilated freely, there should be no bud-dropping; and when heat is given the result should be strong blossoms. Such well-known varieties as Royal George Peach and Lord Napier Nectarine, force so readily that they give little trouble. At the same time I have seen too much moisture applied at the start, I mean syringing the trees. This causes the wood buds to develop in advance of the others, and should be avoided. At the same time it is well to keep the house damped over, and my remarks as to syringing are more applicable in dull or cold weather. This house may now be kept at 45deg to 50deg, with a liberal rise by sun heat, and as the flowers begin to show colour, ventilate more freely. In houses subject to green or black fly, every precaution should be taken to keep clear of this pest at the start, and the fly frequently appears after a spell of severe weather, when a little more fire heat has been used. In such cases the trees should be fumigated two or three nights in succession before the flower buds expand. Black fly is one of the worst pests the Peach is troubled with in its early growth. Only a few weeks ago I saw some young trees almost dead where this pest had been overlooked, all the fruiting or sound wood being quite dead.

LATE HOUSES.—Here the work is of a routine character, mostly cleansing and getting ready for next season's crop; and as regards the first named, so much depends upon the state of the trees. There is no better time to get rid of all troublesome pests, and in houses where red spider was present, the trees should be washed with soapy tepid water, cleansing the old bark well, and when dry, thoroughly paint over with Gishurst compound. In bad cases I would advise going over the trees two or three times, omitting the new wood. After the dressing, the trees should be placed on the trellis, and it is well to avoid crowding, as the syringe later on can be used more effectively, and better wood will be secured for next season. In houses that have not had satisfactory crops owing to young trees being too gross, lift them and replant. This is better than severe top pruning. Frequently too much food causes rank growth. In such cases give the trees a liberal addition of old mortar rubble and burnt wood ashes in the soil. The latter is an excellent top dressing mixed with loam. All planting should be completed at an early date, and the trees freely ventilated in late houses when weather permits.—G. W., Brentford.

The Flower Garden.

SWEET PEAS.—An important operation in the culture of these charming flowers is the tilling of the ground. To obtain the best results deep cultivation is essential. Autumn is the best time to do this work. If through any cause it was not done at that time, the first favourable opportunity should be taken to trench the ground 2ft to 3ft deep, at the same time incorporating some well decayed manure. The time and method of sowing the seeds varies with different growers. It is as well to sow the new or scarce sorts in pots, placing them in a cold frame during the present or next month. For a 5in (48-size) pot, five or six seeds will be ample, or they may be sown singly in 2½in pots. Grown in this way they are more under control, birds, mice, and slugs being easily kept at bay. Although growing in a frame, always remember that the Sweet Pea is a hardy plant, and give all the air possible. The beginning of March is perhaps the best time for sowing in the open border. On light soils, however, an early sowing may be made in January or February. Sweet Peas are generally grown much

too crowded; no advantage is gained by sowing the seeds thick; while much better blooms and a longer season of flowering result from thin sowing and judicious thinning of the young plants. The old practice of growing rows and clumps of mixed Sweet Peas has gradually given place to named varieties. A list of distinct sorts is unnecessary here, as a selection for the garden or exhibition can be readily obtained from the catalogue of a seed firm specialising in Sweet Peas.

SOWING SEEDS.—A number of plants which are really perennials or biennials can be treated as annuals if sown in heat in January or February. Of these the Antirrhinum is one of the best examples. The beautiful tall, intermediate, and dwarf sections of these plants raised from seeds excel the named varieties which were more popular a few years ago, and could only be propagated true from cuttings. Seeds, sown thinly in shallow boxes, will soon germinate in a gentle heat. When large enough they should be pricked off in boxes and placed for a time in a heated frame. About the beginning of May the young plants will be ready for planting in the open. Hollyhocks and Pentstemons may receive similar treatment.

MISCELLANEOUS NOTES.—Young plants can be obtained by cutting up the stems of Yuccas blown over by the recent strong winds, and laying them in the fibre of a propagating house. During open weather this month make a second planting of Anemone and Ranunculus roots, to flower in succession to those planted in autumn. Tread the soil firm round Rose cuttings loosened by frost, as soon as the ground is suitable. Protection from sparrows has often to be afforded to Carnations and Pinks at this time of the year. A few lengths of black thread stretched over the beds, or an occasional sprinkling of soot, answers the purpose. Keep a sharp look-out in open weather for mice among the Tulip beds. When once they find out the bulbs, considerable damage may result in a few nights. I have never known them to attack Narcissus bulbs. This is due to their poisonous character.—A. O., Kew, Surrey.

The Kitchen Garden.

SEED ORDER.—By this time the seedsmen's lists will be in the hands of most gardeners, and no time should be lost in making out and returning it promptly to give the seedsman a good opportunity. It is very annoying to have to wait for a packet of seed before it can be sown, and this will be avoided if the seed is now ordered.

ARRANGEMENT OF CROPS.—Every plot of ground should be allocated to a crop as soon as the digging or trenching is finished. This is best done by writing on a large label the name of the crop to be planted and sticking this at the most convenient side of the pot, so that the man in charge of the planting may be able to carry out the cropping without confusion at the proper time.

CAULIFLOWERS AND CABBAGES.—It is now time to make a sowing of a good early Cauliflower. A small quantity of seeds should be sown in boxes, and these placed in a cool house where they will germinate slowly. As soon as the seedlings come through the surface the boxes should be placed as near the roof glass as possible, in order to keep them from becoming drawn. Quite a cool temperature will be best. If grown in anything approaching a high temperature the seedlings soon become drawn and damp off. As soon as the plants are large enough to handle they should be pricked off into other boxes, or three plants in a 3in pot will answer well; but continue to grow them in a low dry temperature. I fear that there will be complaints, great mischief being done to the autumn-planted Cabbage plants by the recent frost. In many cases these were forward owing to the mild weather, and were not in a condition to withstand so severe a frost and cutting easterly winds. Therefore it will be prudent to make a sowing of a good early kind without delay, in case those left in the seed bed are killed. These may be treated as the Cauliflowers.

PARSLEY.—This has been punished rather badly by the late frost, and it will be wise to make an early sowing in case the roots have been killed outright. Sow in boxes and treat as for Cauliflower, and afterwards prick off into an old frame, where it will come on quickly.

ROOTS.—Any roots, such as Parsnips, Salsify, Scorzoneria, and Carrots, left in the ground should now be lifted and placed in the root store in sand or ashes, as after the late frost they will decay much faster if left in the soil.

MUSHROOM.—More beds should be made as fast as those in bearing become worn out. The most should be made of the Mushroom house for the next two or three months, as after this time it will be of very little value for forcing purposes.

EARLY CARROTS, TURNIPS, AND RADISHES.—Mild hotbeds may now be made up for these. A great heat is not necessary, but sufficient to keep out frost and to furnish a moderate heat during the night. The sun will be gaining power daily, and many things under glass will benefit largely by the extra light, and this should be taken advantage of.—A. T., Cirencester.



All Correspondence relating to editorial matters should be directed to "THE EDITOR," 12, MITRE COURT CHAMBERS, FLEET STREET, LONDON, E.C. Persons sending manuscript or photographs, when not specially requested by the editor, and making no demand for remuneration, are presumed to solicit publication without payment. In order that no misunderstanding may arise, and in order to secure the return of their contributions, contributors should state the fact that they expect remuneration, and in all cases, even when contributing voluntarily, correspondents should enclose a stamped envelope if they expect their enclosure to be returned.

INARCHING MADRESFIELD COURT GRAPE ON GROS COLMAN (Constant Reader).—If Gros Colman does not please you, train one of the other varieties you name into its place; the variety next to the condemned sort will be most convenient. Madresfield Court is not a good late-keeping Grape.

REMOVING CLEMATIS SUCKER (A. J. B.).—Any time after the middle of February in mild weather, but before fresh growth takes place, is suitable. Take it off at its origin with the parent plant, being careful not to injure more of the roots than can be helped, being satisfied with a moderate amount of roots to the sucker rather than going so near the old plant as to injure its roots to a serious extent.

LOWEST TEMPERATURES OF AUSTRALIA AND SOUTH AFRICA (A. T.).—We do not know the lowest temperatures ever registered in Australia and South Africa, and the time of year it falls; besides, the areas covered are so large that the readings would be of very little value as characteristic of the whole regions in question. Perhaps some correspondent may be able to supply the desired information.

CARBIDE OF CALCIUM (G. B.).—The waste from an acetylene gas installation is for the most part carbonate of lime, and has been found useful as a dressing for land deficient in lime; indeed, we are informed by a gardener using it that it has had a wonderful effect on a heavy clay, both in improving the texture of the soil and in giving good results in crops. The difficulty seems to be its close, soft, putty-like nature, but this is got over by chopping in small pieces and then spreading on the land at the rate of about 1lb per square yard, and digging in. This, of course, is best done in the autumn or winter, as this gives opportunity for some amelioration, and the working of the soil in late winter or early spring for preparation of the ground for crops still further tends to admixture with the soil. Beyond supplying lime and having mechanical and chemical action on soil, it has no, or very little, manurial value.

APHIS ON CURRANT SHOOTS (R. H.).—The "vermin" on the Currant shoots are the eggs of the Currant blister aphis (*Rhopalosiphum ribis*), and are very numerous, more so than any example previously seen by us. The eggs remain over the winter, and from them emerge the wingless viviparous females in April, and occur continuously until July, and even August. Probably some benefit would be derived by the winter washing with caustic alkali wash, which is prepared in the following way: Dissolve 1lb of caustic soda and 1lb of carbonate of potash separately in water, then mix the two together and add to 10 gallons of soft water. Add to this 1lb of dissolved softsoap. Spray over the bushes about February; suffice that the bushes be coated all over with the finest possible film of the solution. The wash must only be used while the buds are quite dormant. It is very important to spray the bushes early in the year, directly the aphides are seen, that is before the blisters appear or the leaves become curled up, as then the lice can be readily reached by the spray, which cannot be done later in the year. Paraffin emulsion and quassia wash are the most successful remedies. Paraffin emulsion is prepared in the following way: Mix equal proportions of boiling softsoap solution and paraffin together, then churn them up by means of a force pump until a creamy emulsion is produced. When required for use, mix the concentrated softsoap and paraffin solution with twenty times its bulk of soft water. Quassia wash is prepared by boiling 5lb of quassia chips for two hours in just sufficient water to keep it liquid, 6lb of softsoap are dissolved in boiling water, and then added to and well mixed with the quassia extract; the whole being then placed in and mixed with 100 gallons of soft water.

SAWDUST (J. M.).—It is bad as a top-dressing for pastures or meadows, as it injures the grass and is long in decaying. It is best applied to heavy arable land. We should only mix blood with it to facilitate the spreading of the latter.

REMOVING TREES FROM A NURSERY (E.).—All trees, shrubs, and plants that you, as a nurseryman, have planted in the nursery as stock-in-trade you can remove. If any of the trees have become too large for removal you must leave them uninjured, and cannot enforce payment for them from the landlord.

PEONIA MOUTAN FAILING (H. H.).—The tree Peonies require no particular treatment, but require a rather light and moderately rich soil, enriching it with leaf soil, vegetable refuse, or well-rotted manure, and planting high rather than low, and about the same depth as before, dishing around the plant for watering, which should be done in dry weather copiously, for want of which we think your plants have died. They require a sunny sheltered situation. The plants, if they show for flower the year of planting, ought not to be allowed to do so, but take away the bud when it is clear of the leaves.

BLANCHING WITLOOF (Idem).—Cut off the leaves to within an inch of the crown of the roots, and cover the ground to a depth of 8in or 9in with any light dry material, as coconut fibre refuse, sawdust, or tree leaves, placing a little litter over the latter to keep them from being blown about by winds, and the young leaves of the Witloof will come through the covering material, and from the exclusion of light be blanched, they being in fine order for salads when from 6in to 8in long. We take up the roots, cut the tops off about an inch above the crown, and place in rich light soil up to the crown about 3in or 4in apart in a dark place, with a temperature of about 55deg, in which they do splendidly.

VINES IN CONSERVATORY (A Lady).—Plants do not generally succeed beneath Vines, the leaves obstructing the light, but as a slight shade is desirable in a conservatory, and the Vines being leafless in winter, there is really no objection to them provided they are not allowed to cover the roof too densely. In your case Vines at 4ft to 4ft 6in distance apart we should consider desirable. If you can command a certain supply of gas that would be the best mode of heating your house, having a gas-heated boiler with hot-water pipes sufficient to exclude frost; or the house might probably be most economically heated by a boiler fixed at the back of the fire in the room, yet a separate apparatus would be best, gas being the least trouble of any.

GARRET-BEDDING PLANTS FROM SEED (P. F. S.).—The *Cerastium*, *Cineraria*, and *Mesembryanthemums* may be raised from seed, but are much better raised from cuttings. The seed may be sown thinly in pots of light soil, covering the seed very slightly and keeping the soil regularly moist, the pots being placed in a hotbed until the seedlings appear. After that a light and cool position must be afforded to harden the seedlings, which must, when large enough, be pricked-out in boxes or be potted singly in very small pots. Coleuses must be raised from cuttings. These and cuttings of all the plants mentioned will strike readily in sandy soil in your hotbed, affording moisture and shade to prevent the cuttings from flagging. We advise your procuring cuttings of the plants you require.

NAMES OF PLANTS.—*Correspondents whose queries are unanswered in the present issue are respectfully requested to consult the following number.* (A. P.).—*Hamamelis arborea*. (T. P.).—*Iris Histrio*. (J.).—1, *Cypripedium Leeatum*; 2, *Cyp. insigne* Harefield Hall.

Trade and Miscellaneous Notes.

English Roses for India.

Messrs. Keynes, Williams and Co., Salisbury, write: "We have had long experience in sending Roses abroad, and our consignments are very successful. We are this week sending a case of over 300 Roses to the Viceroy of India per 'Marmora,' sailing on Friday."

Trade Catalogues Received.

Seeds.

Austin and M'Aslan, Salkeld St., Glasgow.
W. Atlee Burpee and Co., Philadelphia, U.S.A.
Kent and Brydon, Darlington.
Little and Ballantyne, Carlisle.
Albert F. Upstone, 35, Church Street, Rotherham, Yorks.

Benjamin R. Cant and Sons, The Old Rose Gardens, Colchester.—Roses
Keynes, Williams and Co., The Nurseries, Salisbury.—Roses.
John Spencer, Ltd., Wednesbury, Staffs.—Iron and Steel Tube Fittings.



"Deaf-ear" of Barley (*Helminthosporium gramineum*).

Having arrived at mid-January we seem to be very near seed-time for barley, although there seems little prospect of drilling successfully before March. But we may prepare our land as perfectly as possible, have it entirely to our mind, procure the best of seed, yet fail from some inexplicable cause.

We have always favoured the use of sound good seed for the barley crop. Size of berry is such an important element in a good maltsters' sample, that our efforts should always be directed to producing a well-filled grain; but when we buy big seed we cannot always guarantee a good sample from it, and still less can we guarantee a good crop unless we use every precaution, and the knowledge which agricultural science provides for us.

We have many times in this column preached little sermons on the folly of neglecting to dress wheat against bunt before sowing; we have also recommended the use of a similar mixture for barley, as we have known much benefit derived from it. We have received a pamphlet of observations on a disease producing the "deaf ear" of barley, written by Mr. M. C. Potter, M.A., F.L.S., professor of botany, Armstrong College, and hon. consulting botanist to the Newcastle Farmers' Club. Very interesting it is, as the illustrations of damaged ears are very familiar to us. We have seen many such, and some of them are quite old "enemies," shall we say.

This deaf-ear disease of barley is evidently no new thing. For under its name of *Helminthosporium* it was noted by Eriksson in 1886, and described by him, so that our remembrance of it so long ago is easily explained. The most complete research was made into the subject by K lpen Raon in 1901. The symptoms as described by him include three different appearances, "(1) The ear completely emerges from the sheath of the uppermost leaf, but the separation of the ear from the leaf sheath is less than in normal cases. (2) The extension of the internode commences, but ceases before the ear is fully liberated, whereby the extremities of the awn are not released from the sheath; and (3) the ear is never exposed, but always remains enclosed in the sheath. The third type is stated to be the most frequent. The ears of the diseased plants which emerge from the sheath are easily distinguishable. The awns are weak and do not diverge, and the grains are arrested in their development. The chaff and grains are coloured brown, and the awn is sometimes blackened by the fungus."

Mr. Potter says that a cold sowing time encourages the growth of this fungus. It may be so, but we believe that its success in attacking the growing plant in a cold spring and summer may be due rather to lack of vigour in the barley than to extra virulence of the pest. He also concludes that dry seasons favour its development, and as far as our memory serves us in the observation of our grain crops we are strongly of opinion that he is on the right track, but again we must point out that the increased damage is due to lack of vigour in the plant through lack of moisture. It has been in such dry seasons that we have noticed so many of these diseased ears, we were going to say badly developed, but we prefer to say diseased, for an examination of the straw almost invariably found that it was withered or withering.

Well, we have pointed out the disease, which we believe is no new thing, but like many others recurs at intervals when the conditions are favourable to its stronger development. The main object in calling attention to Mr. Potter's pamphlet is to point out the remedies or preventive measures which he recommends.

He seems satisfied that infection is carried in the seed, and that preventive measures must be taken before the seed is sown, as in the case of "bunt" or "smut." In either case the infection is carried originally in the seed, and it should therefore be largely under control.

Mr. Potter recommends, "A modification of Jensen's hot-water method has been found a very successful treatment, and it has been demonstrated that immersion for five minutes in hot water (127deg F.) after the seed had been previously steeped for about fourteen hours destroyed the conidia of *helminthosporium*."

Very good results have also been obtained by K hn's treatment with copper sulphate and lime. Copper sulphate, however, is not desirable as a dressing for barley, as it is apt to injure the grain and delay germination. Treatment with

formalin is simple, and much to be recommended. Recent experiments carried out by the Department of Agriculture at Cambridge have shown that steeping the grain for ten minutes in a solution containing one part formalin to 240 parts water was very effective in destroying *helminthosporium*, and produced no bad effect on the seed. It is also stated that somewhat greater strengths (viz., one part formalin to 160-200 parts of water) may be safely used.

We know that in many years much loss has been caused by this failure of barley to come to perfection, and if any watering or dressing of the seed will prove an effectual preventive a great benefit to the farmer must result.

Work on the Home Farm.

We have had a very funny week as regards weather: four days of black frost, then two days rain, and now black frost again. There is promise of snow, but none falls. If we are to have any very low temperatures a good covering of snow would be a great protection to the turnips and young wheat.

The latter is very backward, and that which is above ground is not in a position to withstand severe weather. It is difficult to discern whether some wheat fields have been sown, and a foot of snow would keep the young plants warm from frost and out of danger from birds.

Meanwhile the sharp frost must be doing much good to ploughed fallows, and we have had so much rain lately that except for a protection for wheat and roots a snowfall is not required.

With the ground so wet the frost must have been bad for turnips in the open, and farmers who have their swedes in pies must have felt very thankful that they were in that position. Turnip cutters to mend must have found some work for the blacksmiths.

The roads have been very good for delivering corn and potatoes. There has been a ready sale for wheat and barley, and heavy threshings during the frost are now being sent away as quickly as possible. Not many potatoes are being moved, for two reasons, viz., there are very few left to move, and holders are very firm in their demands, and also buyers do not care to risk damage from frost in transit. Considerable damage has accrued lately from this cause.

Sheep had a good layer during the frost, but turnips were very hard, and the animals would have done badly without a good supply of hay, &c.

Cattle sell well, but farmers are more inclined to clear out, so markets are full enough. Roots will not be too plentiful, and all bought foods being dear too much responsibility is put on the haystacks. We fancy that hay will soon meet a better market.

Considering the price of pig food pork keeps its price well. Offal potatoes are now worth 35s., and feeding barley is quite as dear as it was. Feeders have sold pork very freely, and we think that supplies will be short before spring, and small pork in April and May much dearer than it is now.

The Utility Poultry Club's Laying Competition.

The twelve months' competition has now run for three months, and the figures for the period are now available. Twenty pens of six birds each are taking part in the test, and the birds are under the direct supervision and management of Mr. E. W. Richardson, the hon. secretary of the club, at his farm at Rayne, near Braintree, Essex. The pens are all housed separately, and have duplicate grass runs. Trap-nests are used, so that the laying of every bird is faithfully recorded. The following are the figures for the first three months, ending December 31:—1, white Wyandottes, 245; 2, ditto, 193; 3, white La Bresse, 186; 4, white Wyandottes, 183; 5, ditto, 182; 6, buff Rocks, 177; 7, white Wyandottes, 173; 8, white Leghorns, 168; 9, white Wyandottes, 160; 10, buff Rocks, 159; 11, white Wyandottes, 136; 12, ditto, 123; 13, Houdans, 117; 14, barred Rocks, 116; 15, black Wyandottes, 111; 16, white Leghorns, 99; 17, ditto, 69; 18, buff Rocks, 63; 19, white Leghorns, 57; 20, partridge Wyandottes, 20. No great alterations have taken place in the position of the leading pens except the pen of La Bresse, that has moved from eighth to third. The ninth pen has gone up seven places, and the second, twelfth, and thirteenth pens five places. The pen at the top laid 89 eggs during the month as against 107 last month, when it was also first. Better laying has come from those pens that did only fairly, or even badly, in the previous months, thus the ninth pen laid 115 eggs (a record for the competition), or an average of nineteen eggs per bird. The twelfth pen laid ninety-six eggs, and the thirteenth ninety-three, both these pens only laying some two dozen eggs during the previous two months; a bird in the former of these pens laid twenty-seven eggs, while another bird in the same pen has not laid an egg! The weather until late in the month was mild and generally wet, the dry but cold weather that followed was accompanied by bitter east winds and some snow. The birds, however, remain in good health. Unfortunately, some are moulting, mostly Leghorns.—UTILITY POULTRY CLUB, 68b, Lincoln's Inn Fields, London, W.C.

Seeds

DOES IT OCCUR TO YOU

that in the business of supplying seeds for the garden just as much as in any and every other business there are various qualities, both of the seeds themselves and of the strains from which they have been harvested. The quality of the seeds—in other words, the germinating power—can be ascertained readily if deemed necessary, but not so the quality of the strain from which they have been harvested. For this there is no alternative but to wait until the crop reaches maturity, and what if should evolve vegetables small, of poor flavour, and generally indifferent, and flowers of poor, maybe mixed colours, puny in size, and of no form? And alas! a year wasted, never to be recovered. This, time and again, must have been the experience of many growers who before purchasing have never given thought to the qualities, who because they have not been able to see any difference in seeds have taken it for granted there is but one quality, and that prices other than those they have paid are merely fancy ones. It is well said one learns by experience, but why waste time learning by experience when we, with a vast experience, the accumulation of a lifetime, and a high reputation to maintain, MUST and DO supply seeds of the highest standard, seeds saved from selected plants of the character finest to each variety. If YOU are a buyer of the best seeds, we will send you our catalogue without charge and post free.

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Journal of Horticulture.

THURSDAY, JANUARY 23, 1908.

The Nitrates Supply.

FROM time to time the agricultural and horticultural world is stimulated to enthusiasm by scientific discoveries which it is claimed will revolutionise cultural methods, but in practice many of those discoveries have proved to be of far less value than cultivators were led to anticipate. Notwithstanding startling scientific discoveries, the stern fact remains that the older cultivators managed to grow crops generally quite as well as they are grown to-day. That, however, is no proof that some at least of the discoveries of scientists have not been of great value to cultivators, for this reason—viz., that economy in production is one of the greatest necessities of present times. Manufacturers may be able to produce machinery and other articles which cannot be beaten in point of real merit, and yet fail to make the business a financial success, because other firms are able to produce similarly good articles at less cost. It is exactly the same with cultivators, at least with those who cultivate for commercial purposes. The production of fine crops does not necessarily mean that those crops will prove profitable ones. The vital point is whether or not others can produce and sell equally good materials at a lower rate, and yet have a sufficient margin to give a clear profit. To our mind it is in this direction that scientific discoveries have been of the greatest benefit to the cultivator.

In the old days, practical farmers knew that after a crop of Lucerne, Peas, Beans, or other Leguminosae, cereals and many other crops grew vigorously with the addition of but little manure to the land, hence the three-course system of rotation of crops, which has for so long been successfully practised. Hellriegel made the discovery that leguminous plants had the power of obtaining their nitrogen from the air, that they enriched the soil with nitrogen, and that the percentage of nitrates formed varied with

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No. 1459.—Vol. LVI. THIRD SERIES.

the number of nodules which formed on their roots. It was also found that the vigour of plants increased with the number of nodules produced. A little later Professor Ward showed that the nodules were caused by the invasion of bacteria from the soil; also that the bacteria were able to turn nitrogen and oxygen into nitric acid, as long as they had within their reach suitably prepared organic food, which they found by forcing their way into the roots of pod-bearing plants. After a time it was found possible to breed the bacillus artificially, and to inoculate sterilised soil with the bacillus culture; with the result that what is known as nitro-culture was placed on the market.

It was asserted that this preparation was of immense value to those who had poor soils to deal with, because such soils are deficient or entirely devoid of the bacteria necessary for the formation of root nodules; hence leguminous plants grown in such soils were enabled to exercise their natural functions. When, however, barren soils are treated with nitro-culture, the bacteria are compelled to force an entrance into the roots of the legumes or themselves die for want of food, but once inside, they get the food required with the exception of nitrogen, which they obtain from the air. Thus, the legumes which were starving for nitrates, secure the principal food which was lacking to enable them to make healthy growth. Nitro-culture, then, became specially valuable for improving the worst of all soils, viz., thin barren ones. It was also found to be beneficial to pod-bearing plants growing in better soil, because it ensured the early formation of nodules, and thus gave plants treated a quick and vigorous start in their early stages.

To Professor Bottomley belongs the honour of obtaining good practical results in this country in regard to the absorption of nitrogen from the air by plants, and of its fixation in the soil in the form of a suitable plant food; also for a more recent and striking development. For a long time it was thought that only leguminous plants had the power to fix for themselves the nitrogen they required. An attempt was therefore made to endow plants belonging to other natural orders with this wonderful power. The bacilli were therefore taken from their favourite food (leguminous plants), and bred for generations on the extract of Tomato roots, with the result that their descendants acquired a taste for their fresh food, and when the bacilli were introduced into soil in which Tomatoes were growing, nodules were formed. Since that time Professor Bottomley has succeeded in inoculating cereals, Cabbages, Strawberries, and Roses; and there is every reason to believe that in the future plants of all descriptions will be endowed with the power of obtaining from the air that valuable constituent nitrogen, which has for a long time proved so expensive for the cultivator to supply.

Should this latest startling scientific discovery prove to be as successful in practice generally as present indication warrants us in believing, it will undoubtedly be the means of bringing vast areas of at present unprofitable land under culture again, and the vast volumes of nitrogen in Nature's storehouse, the atmosphere, which has for so many centuries remained unharnessed, will give to our populous land the power of supplying her people with a vastly greater proportion of the food required than she has yielded in recent years. All nations will undoubtedly benefit if the discovery proves reliable and practical, but thickly populated countries where there is still much derelict land should benefit the most. At any rate, this is a matter which cultivators of all descriptions cannot afford to ignore, because it shows the way to success for commercial purposes by means of economy of production.—D.

Of all the constituents of garden soils none is of greater importance than lime. Upon its presence in sufficient quantities depend not only the maintenance of a relatively high state of productiveness, but also, in no small measure, the successful checking of terrestrial insect pests. "Why are our gardens infested with turnip flea, with grubs and myriads of soil pests?" asks Mr. Cousins in the "Chemistry of the Garden"; "Why do not our Peas flourish with bright green leaf and bountiful luxuriance? Why are our applications of manure so ineffectual and without good result?" And he answers that in nine cases out of ten such perplexities may be traced to the fact that the soil lacks lime.

Even in this progressive age it is certain that some of the simplest of scientific truths are yet very imperfectly understood; in fact, I think I am not far wide of the mark in saying that, in some cases, they are purposely and bigotedly ignored. It is not difficult to find gardens in which tons of manure have been buried through a series of many years, without any attempt having been made to supply the necessary modicum of lime. Small wonder that such gardens become the happy hunting-ground of pests innumerable, or that plants are sickly and unprofitable in such a rooting medium. The soil, especially if it be of a clayey texture, is sour and "livery," it resists the

beneficial penetration of the air, and is unable to yield up its store of plant food to the famished roots. This latter fact should be particularly emphasised. In soil such as we are considering a continual waste of valuable potash from the surcharged humus is going on, simply because the soil does not contain the element capable of fixing the surplus, and chemically converting it into a form available by the roots of plants. That element is found in carbonate of lime, i.e., lime naturally "slaked" by the action of the air and soil-water. Even the potash which the humus retains is locked away and rendered largely inefficient until it is liberated as carbonate of potash under the influence of lime. The utility of artificial potash manures, too, is directly proportional to the amount of carbonate of potash the soil-lime is capable of producing. In this form the potash remains in the soil until assimilated by vegetation, undiminished in any appreciable degree by the percolation of rain-water.

The rich ammoniacal properties of organic manure, again, are entirely dependent for their efficacy upon their conversion into a nitrate by the bacteria of the soil; and, as these minute organisms cannot do their work without lime, the necessity for this substance is forcibly apparent in this regard also. But, independent of these facts, lime is in itself a real plant food, entering into the constitution of nearly all vegetable organisms in considerable proportions. Fruit trees, especially stone fruits, derive great benefit from a periodical dressing, partly, no doubt, because lime forms a suitable base for the phosphates of which they stand so much in need. On heavily manured land, then, an application of slaked lime, say every three years, should never be forgotten. It produces porosity in clayey soils, and renders sand more retentive of moisture; in fact, it is conducive in every way to a high state of fertility.—J. S.

When the earth is held in the iron grip of frost, and skaters glide swiftly over the glass-like surface of the ice, gardeners generally, and young gardeners in particular, often experience an anxious and trying time. King Frost has to be conquered where glass houses are filled with advancing vegetation, or the results would soon be disastrous. True, the task is

now not quite so formidable as it was in the days of brick flues and small boilers, but even now great watchfulness and a considerable amount of judgment has to be exercised to keep the occupants of glass houses in a satisfactory condition. Where the boilers are large, and the houses fitted with a sufficient supply of piping, observant and careful stokers are able to adjust matters to suit any reasonable requirements; but with small boilers and too little piping it is often a case of sticking to one's task with grim determination, to maintain an intermediate temperature, or in some instances to keep out frost. I often look back to the long struggling nights on duty during severe weather, when the water in the pipes had to be kept near boiling point to maintain anything like a safe temperature in forcing houses or stoves, and I have sometimes marvelled to think how near we sometimes were to disaster without quite experiencing it. In those days, during the few hours after midnight that the fires were unattended, one would sometimes burn too fiercely for a time, and cause the water to overflow the supply tank; then when the early morning stoker went round he had a hard anxious time to get the fire-alight, and the water circulating freely before damage was done. The owner of a small greenhouse, or the single-handed gardener, may still have troubles of this description to combat; but the heating arrangements in larger establishments are now generally much more satisfactory.

Another point of interest to the stokers of present days is that gardeners, as a rule, are not quite so strict in regard to maintaining the thermometer to the exact degree thought right. Woo to the youngster in times past who failed to have the thermometer in a forcing house to within a few degrees of the temperature he was ordered to maintain, and rather than face the anger of his chief under such circumstances, many a one has sent up the mercury with a little warm water, or by the heat of the breath when the chief was expected round. During severe weather the occupants of forcing houses are undoubtedly all the better if the temperature is allowed to fall considerably below those maintained at night during normal weather; also when a bright day is likely to follow a severe night, it is often wise to check the fires much earlier in the day than many are accustomed to do. Otherwise strong heat from the hot-water pipes and sunbeats combined raise the temperature to too high a point during the day. The great point in combatting frost is to start the fires early enough during the afternoon before a sudden fall of temperature takes place. Those who have to deal with houses not well heated should remember the great advantage to be gained by covering the roof and sides with canvas, mats, or any suitable material at command, as attention to such matters economises fuel, saves much anxiety, and often prevents disaster.—X.



Cypripedium × Venus.

A hybrid from the same cross as the one that gave Cypripedium Venus was shown by Major Holford at the meeting of the Royal Horticultural Society last week. The parentage of the flower here figured is *C. insigne* Sanderae and *C. niveum*, and the combination has produced an uncommonly chaste and pretty flower. This was exhibited by Mr. Norman Cookson as his Oakwood variety, in 1902, and obtained a first-class certificate. The lip is greenish-primrose, the petals being paler still and spotted with reddish dots; the dorsal sepal being white at the margin, green in the centre, and also spotted with red.

Diacrium bicornutum.

This somewhat rare orchid is also known as *Epidendrum bicornutum*, and in the majority of gardens it is still classed as such, although quite distinct from that genus. The flowering season is spring and early summer, the blooms being fragrant, and nearly all white. The only exception is that of the lip, which is dotted with purple, and has a yellow crest. The stems are hollow, and usually 8 in to 12 in in length; and it is after the bulbs have completed their growth that the terminal spikes are produced.

From a cultural standpoint this is a difficult subject to deal with; but it is occasionally seen in a thriving condition, which shows that it can be grown successfully if we could only drop upon the right treatment. Many orchids for some reason will luxuriate in one certain position, but if removed they refuse to grow satisfactorily. To those who happen to possess a few plants of this chaste orchid the following cultural details may prove helpful and interesting. Strong heat, such as the East Indian house provides, will be required for the growing season, and not too heavy shading, neither should root disturbance be practised more than is really necessary; but whenever the repotting takes place it ought to be done carefully so as not to injure the roots to any great extent. Teak wood baskets are often recommended, but pans do equally well; in fact, the pseudo-bulbs can be made more firm in the latter receptacles. Good drainage is essential, and fibrous peat and sphagnum moss in equal parts proves the most desirable compost, with a sprinkling of Oak leaves and silver sand. Water will only be needed in small quantities immediately after repotting, also when the bulbs have finished growing; but while the plants are active copious supplies must be given, and the atmosphere well charged with moisture.

Ventilation.

Extra care should be exercised at this season, when cold winds are frequent. All draughts or direct currents of air must be avoided by opening the ventilators on the sheltered side of the houses; to what extent the grower must be guided by the conditions prevailing outside.—T. ANTISSE.

Cypripedium Minos and its varieties.

At the last meeting of the R.H.S. a magnificent variety of the above, known as Youngi, was shown, when it received a F.C.C. It was exhibited by Messrs. J. A. McBean, Cooksbridge, Sussex, who must be congratulated upon securing such a grand Cypripedium. This variety was raised in the collection of R. Young, Esq., Sefton Park, Liverpool, and is reputed to be the best produced. We described it in our last issue as having a large spreading dorsal, with a little green at the base, veined deep crimson, edged with rose-purple, and white margin. The petals are yellowish-brown and drooping, a characteristic derived from *Arthurianum*. The pouch, or slipper, is also a rich brown. *C. Minos*, which received an A.M. on November 28, 1893, was originally raised by Messrs. Veitch from *Epicerianum* and *Arthurianum*, the latter being a hybrid between *insigne* and *Fairieanum*. Two varieties, viz., *superbum* and *magnificum*, also came from the same firm, both being given the A.M. in 1895 and 1897 respectively. The Walton Grange and Gratrix's varieties gained A.M.'s from the Manchester Society; while *Lowi* and *Alonso* are not so well known; but the former is said to be similar to Youngi. *Minos* was the first of the *Arthurianum* hybrids, and is probably the finest yet raised, especially where *Arthurianum pulchellum* was used as the pollen parent.—T. A.

Microscopic Gardening.

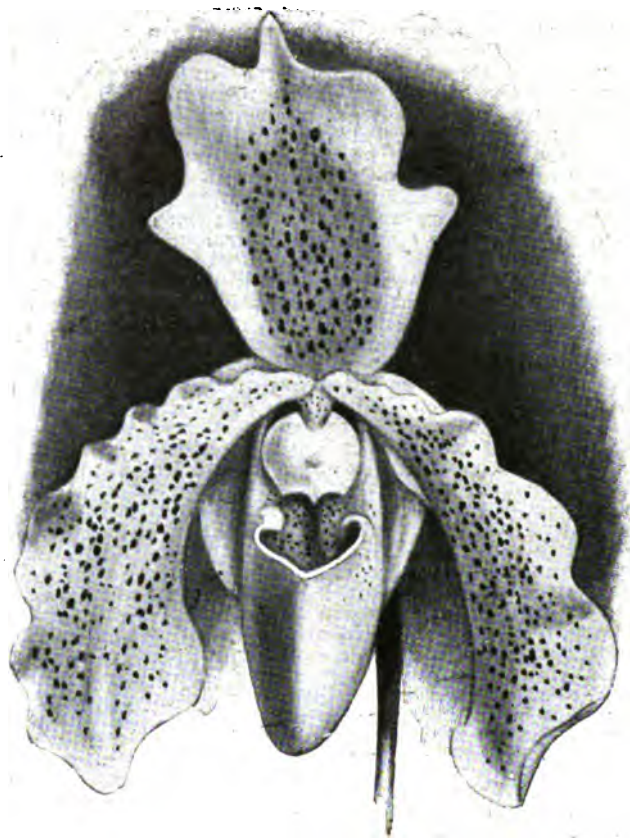
(Continued from page 44).

I must best describe the principles of the present methods of studying fungi by taking that which I have for several years employed in my own laboratory for the isolation, transplantation, and growth of fungi from single spores.

Having found a gelatinous medium in which a fungus will grow, we proceed as follows. A glass chamber with a very thin detachable roof is baked in an oven, and allowed to cool ready for use. The spores of the fungus are then shaken up in the melted gelatine-medium freed from other spores, so that they are separated and distributed in its mass, and the whole poured into a larger baked and cooled shallow glass dish, and allowed to set solid as a thin transparent film. This is kept covered, and every precaution taken to prevent access of spores from outside.

In a few days the tiny fungus-plants appear, scattered at intervals over the bed of gelatine, and if there are no other species appearing than the one sown, we know the culture is pure, and ready for transplanting.

A few of the spores from one plant are now again shaken up



Cypripedium × Venus.

in the melted gelatine-medium and a small drop transferred to the thin glass roof of a little glass house. Here the gelatine-drop soon sets, and is so placed that it hangs down from the under-side of the thin glass roof, and since both the hanging gelatine-drop and the glass roof are thin and transparent the microscope can be focussed and the spore observed. If the microscope shows that the drop contains only one spore, it is now allowed to grow under the microscope, and all its changes can be followed for many days without danger of weed-fungi getting into the closed Lilliputian greenhouse.

Various modifications of this procedure are known, and many small precautions must be carefully followed, but we see that here is a method of growing a microscopic plant in a minute artificial bed of prepared soil, and studying its behaviour in a closed miniature greenhouse, the temperature, moisture, lighting, and ventilation of which can all be kept under control—a veritable method of microscopic transplanting and greenhouse culture in fact.

Of course it is troublesome, and often difficult and tedious; but the splendid results that have been obtained by patiently persevering with these and similar procedures have quite

* By the late H. Marshall Ward, D.Sc., F.R.S., before the Royal Horticultural Society 1897.

warranted the steady development of these methods of microscopic gardening.

Many practices of the gardener to "force" flowers are known, and I need only mention generally that especial attention is paid to a rise of temperature, exposure to light, the production of vigorous buds by "high feeding," and the avoidance of too damp an atmosphere.

Now recent developments in microscopic gardening have shown, especially in the hands of that clever worker Klebs, that the production of the fruiting organs in Algae—organs which correspond physiologically to the organs we wish to obtain in flowers—is very definitely connected with the action of such factors of the environment as temperature, light, moisture, and food materials. The principal points of importance in these experiments with the lower microscopic plants, however, consist in the fact that the plants themselves are simpler and more under control; that it is easier to vary one factor at a time and trace its action by changes visible under the microscope; and that the results occur quickly, hours and days taking the place of weeks and months or years.

Hence microscopic gardening acquires a very peculiar interest in connection with all studies which are directed to improve our knowledge of the culture of the higher plants, and therefore appeal to horticulturists very directly and especially.

Microscopic gardening is by no means confined to experts in botany and laboratory methods, however, and certainly one of the best lessons I ever had in this branch of gardening was given me by an old gentleman who for many years had had charge of the hybridising department of one of our largest horticultural firms. He showed me, with great patience and kindness, how he selected pollen and transferred it to the stigmas of the flowers he was operating with, and the precautions he took to prevent certain visitors from rival firms—chiefly bees—from entering his preserves and sowing foreign germs (i.e., weed-pollen) on his pet microscopic culture-beds (i.e., stigmas), and I remember being much impressed at the time with the thought that the bees and flies and other insects, of which Darwin has written so beautifully and to such splendid purpose, are really the oldest practitioners of this ancient art of microscopic gardening.

For such it is. In artificial cultures the laboratory gardener has now shown that when a pollen-grain is sown in the sugar-solutions which moisten the stigmas of flowers, it absorbs water and oxygen, feeds on the sugar, and grows, just as a seed may be grown in water until all the reserves are used up: it puts out its pollen-tube exactly as it does when planted by a bee or by the hand of a horticulturist on its natural bed—the sugar-laden stigma—and years of patient research have shown that as this pollen-tube grows down the style into the ovary of a flower, it does the same: growing at the expense of the sugary juices offered it by the style it succeeds in growing long enough to carry its contents to the ovules—the future seeds—and we know what important effects follow according as we sow good or bad pollen, that from choice varieties or that from the wrong flowers. Hence the whole art of fertilising and hybridising flowers really consists in microscopic gardening.

If this required further proof than I have given, nothing is more conclusive to my mind than certain results obtained a few years ago by the Russian observer Woronin. He found that in many Bilberries the fruits, though apparently formed normally, shrivelled up as they ripen to a black mass full of a fungus. On tracing the life-history of this fungus it turned out that its spores—i.e., what correspond to seeds—have a faint Violet odour which attracts insects, and some of the spores are carried by the insects to the stigma of the Bilberry and there sown, mixed with pollen brought by other insects, or by the same, from Bilberry flowers.

Now, the fascinating point in this history is that we have here clearly a case of microscopic gardening where the prepared bed—the stigma—receives its normal sowing of pollen, together with a greater or less proportion of weed-spores, and the latter justify their name inasmuch as they, like true weeds, grow so much more quickly and vigorously that they soon occupy the whole area, and, growing down the style, reach the young ovules and devour them, and convert the whole fruit into a mummy filled with fungus.

(To be continued.)

Concerning Words.

To look at handsome bindings may help us to realise how "books" have progressed from the days when they were only wooden rods or bits of bark, on which our remote forefathers cut their runes. For the derivation which connects "book" directly with "beech," both having been "boc" in Anglo-Saxon, is the favourite one. "Buchstaben," the German word for letters of the alphabet, means literally "beech-staves." It is remarkable how many of our book words go back to such vegetable origin. The Latin "liber," a book, whence comes our "library," was properly the inner bark or rind of a tree, especially of papyrus; the Greek "biblon," whence "Bible" and "bibliophile," meant the same; a "codex" was a block of wood; and "leaf" and "folio" are obvious.—("Daily Chronicle.")

NOTES & NOTICES

The Royal Horticultural Society.

The next meeting of the Royal Horticultural Society will be held on January 28. A lecture on, and exhibition of, coloured photographs of alpine flora will be given by Mr. Waltham.

Mr. A. W. Sutton on "Brassica Hybrida."

Mr. A. W. Sutton will read a paper on "Brassica Hybrida" at the next meeting of the R.H.S. Scientific Committee, January 28th, at 4 p.m., in the lecture room at Vincent Square, and will illustrate his lecture by lantern slides. This lecture was delivered before the Linnean Society on Thursday, the 16th inst.

"The Sweet Pea Annual"

The sprightly year-book and "official organ" of the National Sweet Pea Society has been published, and copies can be obtained by non-members, price 1s. 3d., post free, from the secretary, Adelaide Road, Brentford. We have enjoyed Mr. Dicks' historical article, and there are other short contributions on matters of keen interest, as on staking, germination of seeds, and early-flowering Sweet Peas; together with the yearly audit or analysis of varieties shown at the Metropolitan Show. The answers to the secretary's questions as to the best six varieties, earliest kinds, diseases, pests, new methods of staking, &c., when analysed, will prove of value.

The Wargrave Gardeners.

The Wargrave (Berks) Gardeners' Society held their annual tea and social evening on January 15, when about ninety gardeners and their lady friends sat down to a most substantial repast. After the tables were cleared, songs and dancing were indulged in till 12 p.m. A capital programme is being prepared for the coming session, including papers and lectures by Mr. Pope, Mr. J. Botley, Mr. Stanton, of Park Place, Henley; "Present-day Orchid Culture" (illustrated by lantern views), by Mr. T. W. Briacoe; "Microscopic Plants," by Mr. Blencowe, also essays on Caladiums, Gloxinias, and Dahlias, by various other members of the society.—B.

Hale at 108.

Probably the oldest of King Edward's subjects is to be found in Elham Workhouse, Folkestone, in the person of George Keel, who has reached his one hundred and eighth year. In a letter received on Saturday by a relative living at Sandwich it is stated that the aged inmate's health is good, that he can see to read, and that he could walk six miles easily if allowed to do so. His only failing is deafness; otherwise his faculties are unimpaired. Keel was born at Manton, Marlborough, in 1800. At the age of eighteen he was sent on the Downs to mind sheep, and he followed the occupation of a shepherd until he reached the ripe age of ninety-five, when he gave up that employment. For several years afterwards, however, he supported himself by doing gardening work. He was married at Twerton Church, Bath, in 1830, and his wife died in 1892.

Branches of the B.G.A.

The executive council desire to inform gardeners that they are prepared to support efforts to form branches in any part of the United Kingdom. They will, on application, arrange to send a delegate to address the meeting, provide handbills for distribution, and pay the initial expenses for hiring room. In the case of the establishment of a branch with a properly constituted committee and secretary, the council are prepared to assist the branch with the necessary stationery and other necessary literature. The executive council also suggest that at least four meetings be held during the year, and, if possible, papers on general gardening should be read in addition to the general business of the branch. The secretary of each branch is also invited to send up reports embracing any items of gardening interest in addition to the reports of business done. A branch of the B.G.A. may be formed wherever a mutual improvement society (composed of professional gardeners) exists.—J. W.

Saltaire, Shipley and District Rose Society.

The compilation of classes and prizes for the society's forthcoming exhibition on Thursday, July 16, is now completed, for which the prize-money, including trophies and plate, &c., amounts to upwards of £250, which will thereby ensure a large entry from the leading exhibitors of the country.

Cardiff Gardeners' Society.

The first meeting in the new year was held on the 7th inst., at the Philharmonic Restaurant, Mr. H. R. Farmer presiding. The lecturer for the evening was Mr. Harold Evans, Hardy Plant Nurseries, Llanishen, who gave an interesting lecture on the water garden, which subject he divided into two parts: Firstly, plants that live entirely in water; secondly, moisture-loving plants, trees, and shrubs. Mr. Graham opened the debate, congratulating the lecturer on his interesting paper. Several members took part in the discussion. Mr. J. Prosser was awarded the first prize for Cyclamens.—R. T.

Chester Paxton Society.

Members are invited to bring to the meetings plants, cut flowers, fruits, or anything of special interest they may have, whether bearing upon the special subject of the evening or not. The following lectures are included in the winter programme:—

January 18, "Springtime in the Undercliff District of the Isle of Wight," by Mr. J. D. Siddall, illustrated by photographs of the scenery, botany, and geology; chairman, Mr. A. W. Armstrong. Feb. 1, "Common House-Fly," by Mr. R. Newstead, A.L.S., F.E.S., &c., illustrated by lantern slides and specimens; chairman, Mr. John Weaver.

February 15, "The Flora of India and Ceylon," by Mr. Joseph Thompson, illustrated by a series of interesting lantern slides; chairman, Mr. N. F. Barnes.

February 29, "Herbaceous and Alpine Plants," by Mr. W. S. Sharp; chairman, Mr. Robt. Wakefield.

Bolton (Yorks) Self-help Society.

Mr. George Corbett writes: "In connection with the Bolton Horticultural and Chrysanthemum Society we have a separate branch known as the Bolton and District Horticultural Self-Help and Benevolent Society. It was commenced in 1903 by only a few members. Our membership now is fifty-three. The objects we have in view are to assist our members when out of employment and in sickness. I believe the objects were put forward in the *Journal of Horticulture* in 1904. It has been of service in several ways, by assisting our members in sickness, and several when out of work, and by helping others to secure situations. We make a strong point of recommending only good reliable men." From the accounts we find that £2 have been paid to members out of work; £9 for sickness; and other expenses made a total of £13 2s. 8d. for the year ending December, 1907. The society has now a balance of £125 6s. 5d. to its credit.

Testimonials.

The following is part of an article by Mr. A. C. Bartlett in the current issue of the "Journal of the British Gardeners' Association." "Occasionally we hear of an employer refusing to give a testimonial to an employee who leaves in disfavour, or who desires to leave contrary to the employer's wishes. At present it seems there is no legal redress, and an employer cannot be compelled to give a testimonial. At first sight here appears to be a just call for legislation, but on further consideration it will be seen that a testimonial compulsorily given would have a very negative value. For the real worth of a testimonial to a would-be employee consists not so much in what is said, as in what has been left unsaid. With the knowledge that to a great extent an absolutely true and unvarnished statement of an indifferent employee's character and ability would effectually bar him from obtaining another situation, it requires more than the average hardness of heart, and sense of justice to other employers, to sit down in cold blood and write a true and deserved testimonial. The present form of testimonial is much of a lottery. Its value to a man depends largely on the disposition and literary ability of the person writing it. A man may be nearly all that he should be, but be unlucky enough to have to look for the record of his work to a head gardener who detects writing, and under these circumstances it may be guessed—good men though both may be—what sort of a testimonial will be obtained."

Women's Horticultural Show.

An exhibition of farm and garden produce organised by the Women's Agricultural and Horticultural International Union, will be held on Wednesday, July 15, at the Royal Botanic Gardens.

Register of Nurseries and Market Gardens.

We have received the January register of nurseries, market gardens, farms, florists' seed businesses, and partnerships to be let or sold from Messrs. Protheroe and Morris, 67 and 68, Cheapside, London, E.C.

A Sweet Pea Society at Trowbridge.

The residents of Trowbridge, in Wiltshire, are very enthusiastic over Sweet Peas, and have formed a society in the interests of these flowers. Mr. Horace J. Wright delivered a lecture there on Sweet Peas last Friday. A show will be held in July, jointly with other flowers. And so the Sweet Pea flourishes.

"My Garden Diary for 1908."

Again Messrs. Sutton and Sons, of Reading, have issued their now well-known diary, which contains cultural reminders for each month of the year, with spaces for writing notes. Double Daisies, red and white, in colours, form the frontispiece, and a beautiful photographic view of florists' yellow Primroses and Polyanthus growing "wild" in a wood, appears within the front cover. Notes on vegetables occupy two back pages, and there are also select lists of annuals and bulbous flowering plants.

British Gardeners' Association.

At the last meeting, Mr. C. Foster in the chair, ten new members were elected, bringing the total up to 1,138. A keen discussion took place as to turning the quarterly "Journal" of the association into a monthly publication. It was eventually decided in favour of a "monthly," after the next quarterly issue, which would complete the year, and subject to full details as to cost to be submitted at the next meeting. A resolution in favour of legislation in Parliament for the establishment of old age pensions was carried, and Messrs. Lewis and Little were appointed a sub-committee to watch the procedure and report any progress made. A sub-committee was also appointed to prepare a practicable scheme for the examination of gardeners, the details to be ready by the annual meeting.

Royal Meteorological Society.

The annual meeting was held on Wednesday evening (the 15th instant) at the Institution of Civil Engineers, Great George Street, Westminster, Dr. H. R. Mill, president, in the chair. The council in their report expressed their pleasure at the marked and increasing interest taken in the science of meteorology throughout the country. The lectures and exhibitions inaugurated by the society are bearing fruit, and this was evidenced by the large increase in the number of Fellows. After the report had been adopted, the president presented the Symons Memorial gold medal to Monsieur Leon Teisserere de Bort, of Paris, which had been awarded to him by the council "In consideration of the distinguished work which he has done in connection with meteorological science, especially the study of the upper air."

Museums and Jodrell Laboratory. Kew.

The Jodrell Laboratory at Kew is in charge of Mr. L. A. Boodle, F.L.S. This department offers facilities to those who are engaged in research, the materials for investigation being, of course, supplied in abundance from the gardens outside. The laboratory is also available for the investigation by members of the general staff of plant diseases either of home plants or of those sent from the Colonies and India, and for the investigation of any other problems relating to plants. A most interesting department of Kew Gardens is found in the museums, and here the local direction is taken by Mr. J. M. Hillier, assisted by Mr. J. H. Holland, F.L.S. There are three museums, and they are all open freely to the public during stated hours. Their primary object is to show the uses to which vegetable material of every kind may be put in commerce or in the arts. They display the aspects of vegetation in our various Colonial and Indian possessions; and it is a part of the daily duty of the keeper to submit to the director reports on technical enquiries from private or official sources.—("The Times.")

R.H.S. Guild.

With the view of keeping past and present students and employees in the gardens of the Royal Horticultural Society in touch with one another and with the work of the society, it has been decided to form a R.H.S. Guild. A half-yearly magazine will be issued, comprising articles and letters contributed by members, notes on the work of the society in the gardens at Wisley, exhibitions, &c.; general notes of horticultural interest, and a list of members with their addresses. An annual dinner will probably be arranged for the first day of Holland Park Show. The fee for membership is fixed provisionally at five shillings a year. Will old Chiswick and Wisley-ites please communicate with the hon. secretary, Mr. R. J. Wallis, R.H.S. Gardens, Wisley, Ripley, Surrey.

A Waterfall Scene.

After the detailed description of a natural water-course and waterfall in notes on "Rockwork and Rock Plants," on pages 54 and 55, by Mr. Abbey, it is unnecessary to repeat the hints and suggestions therein given. But sometimes a small waterfall or dripping-well is desirable as an adjunct to the rock garden or water pool. Of course, a supply of water is a *sine qua non*; and this may be conducted in the form of an open stream, and made to tumble headlong over a rugged bed, or smoothly and evenly over shelving rocks, as in the picture from Waterlow Park, London, N. Mr. A. J. Hartless was the photographer. Where the open stream cannot be admitted, a supply pipe may conduct a flow of water to the waterfall; but some provision for maintaining an equable outflow should be made, as by secreting a tank or cistern just above the rocks or "fall." Sometimes the supply of water is not sufficiently great to maintain a good discharge for more than a limited period—usually when companies are visiting. It is rather paltry and very disappointing to find the cascade or fall slowly dwindling before the eyes of admiring onlookers; but this we have seen. It is certainly better to have a small and constant supply than a great burst for a very short period. The fall or dripping pool can be thrown well back, and being surrounded and supported by rockery, its sides may be suitably planted with shrubs and alpine; and the sides of the stream, as it drains away, are fitting places for aquatics and bog plants. This stream can be made to disappear into another pipe or drain, carried through the base of part of the rockwork.



Waterfall in a London Park.

Recollections of Rose Showing.

OR 40 YEARS
RETROSPECT,
1868—1908.

BY AN OCTOGENARIAN.

In 1868 I showed for the first time at Reigate; and in 1891 for the last time at the same place; after which I left Surrey; Since then, for the last seventeen years, I have been a spectator; judging occasionally, helping friends to exhibit, and keeping in touch generally, so far as may be, with the profession. It is a large space of Rose time to have covered, and qualifies me, at any rate, to speak with some authority on the marvellous progress made in Rose growing and Rose showing between the two dates.

At my first show, in the year following the one I have mentioned, which was at the Crystal Palace, I find from an old note-book my best Roses were Annie Laxton, a Rose now utterly forgotten; Maréchal Niel, the eternal; John Hopper (only imagine the size!) and that excellent coloured, but also very small Rose, Prince Camille de Rohan. About that time also I was asked to assist at the starting of the National Rose Society; and as far as I remember was on the earliest committee. A very pleasant bond of brotherhood indeed it was; the camaraderie perfect; and our little antagonisms only tending to consolidate the heartiest friendships. The genial Dean beamed down upon us from the chair, enlivening all with his kindly jokes, but at the same time keeping us well up to the collar. D'Ombraïn was there, as always, a "primus inter pares," and took a prominent part in all our discussions. I can well remember the amused smile that ran round the circle when I inquired, at my first meeting, who "D., Deal," was, that clever writer.

At that time our "Rules for Judging and Procedure" had not as yet been formulated. I had the honour of submitting the rough draft to the committee, out of which these were framed; but, at first, judging was rather varying, and depended too much upon individual opinion. The schedules also were but small; indeed, at first, no prizes were offered for best blooms. I first started the idea of "The Best Rose in the Show," and was laughed to scorn for doing so, and told to find it in the course of an afternoon if I could. However, with the help of a couple of friends who were not scoffers, a selection was made of the best h.p. and best tea at the next N.R. Show. That proved a success; and in a year or two both amateurs and professionals had their medal Roses, and this branch of judging became universal.

But, as I was suggesting, what an advance from those days to our 1907. What crowded schedules now; what relays of skilled judges; and the process now duly mapped out and continuous! It is not long since, at a provincial show, I was told off to judge in the nurserymen classes with three of our leading amateur exhibitors. It was no slight task, considering how near to perfection the boxes of our first class professionals are. However, I need not have been doubtful as to being up-to-date, for the three gentlemen never succeeded in becoming aware of my presence. They went to work together in a body at once; and I had an opportunity of watching from a distance first-class procedure. Certainly it was a marvellous advance on our old aboriginal ways. After looking over all the boxes and putting aside several boxes that manifestly were not in the running, attention was then concentrated on certain four boxes in particular. Then pointing began, and the first, second, and third was presently arrived at with almost mathematical certainty.

First a three-point Rose was selected and carried along the rows, ready for reference, in the hand of one of the judges; whilst another of them noted down each point as it was allotted. The third named the points as they passed along in succession; the others agreeing or not as the case might be; but mostly agreeing, and in every case a majority deciding. It gave me the impression of the most absolute impartiality and accuracy; the Roses being judged as they were at the moment, and receiving, each one, the most close inspection. In the twelve of one kind, or where hybrid perpetuals had to be judged against teas, there was somewhat more room for individual opinion.

But I am getting quite away from recollections of the eighties and nineties. One rare memory is that of the advent of La France. It so happened that quite at first half a dozen standards had been sent from France to a neighbour of mine, a small exhibitor, and I took her little six box over to the provincial show. That one box won her three prizes. First as the best in its class, another prize as the best box in the show, and a third as containing the best bloom in the show. We were all lost in admiration.

Another of my experiences was considerably contrary. I was

looking at my "twelve" box with regret at the Crystal Palace, and wondering why such a fine large Rose as Paul Neyron had not been noticed. But it had, and a candid friend observed to me presently, "How could you expect to win with such a beast as that in your box?" I returned a sadder and a wiser man; and never since has Paul Neyron found place even in my garden.

Like most great and successful undertakings the N.R.S. had to feel its way at first; and grew up by degrees into that perfect state of organisation and administration at which it has arrived under my dear old friend of early days, Edward Mawley. In its first beginnings it was rather "go as you please"; and, only by degrees as forced on it, the present all-essential restrictions were adopted. I remember the time when an exhibitor would come to the secretary, and on being asked in what classes he wanted to enter, would simply reply "All." And would actually show in all! This was done for some years by several of our great Leviathans; and the small people kept on humbly trying to win against them.

"Why, sirs, such did bestride our narrow world
Like a Colossus; and we petty men
Walked under his huge legs and peeped about—
Picking up fragments."

Sometimes, indeed, but not very often, we little people managed to score off them. I remember at one show making an eager effort to win the six teas. Of course, Colossus had entered; and his Roses, of course, also were decidedly the best; but oh, joy! one of them was a hybrid tea, and so the second box took the prize. I remember also another case, and no doubt other people had similar experiences. This was at a show at the Mansion House. Another Triton amongst minnows had entered for everything, but had not had time to set up every box properly; his six of "Any kind" had been hastily flung in and left, and so my smaller but exceedingly erect Roses gained the medal.

Of course, this power of indiscriminate entry at N.R.S. shows was soon after restricted; and then, later on, came the very excellent classification, and exhibitors show now according to the number of their Rose plants. The ranks of "large aced Rosemen" have been considerably increased, and it is quite fair that such should keep their fights to themselves. For myself, in my Surrey garden, I never had more than some three or four hundred plants to cut from, which made my small successes perhaps all the more enjoyable.

I remember on one occasion winning a prize in a show open to all England in a very singular manner. I had shown the day before; my Rose beds seemed quite played out, and I was not going to compete. But in the night there came on a thunderstorm, most obligingly local; only a few miles around seemed to have had it. The next morning the beds literally "blossomed like the Rose," and I went off into a neighbouring county and won with my twelve box against men who could count their Roses actually by thousands.

There is much in choosing varieties. I always attributed such successes as I gained when at my best to a row of Maréchal Niel, which I had persuaded to grow along under a wooden paling which had a narrow protecting ledge. At one time I never showed a box that had not a Niel in it. In 1883 I obtained the Cant prize, a piece of plate, for the best twelve of any kind; and in 1887 a first for twelve of any kind, and for six teas of the same kind—Niels, of course. In 1888 I was first with twelve singles, and second with six triplets; and also (my greatest success of all anywhere) at that same N.R. Show my Camille Bernardin was selected as the best h.p. bloom in the amateur classes, and gained for me the silver medal of the society.

Doubtless such successes of a small exhibitor so long ago are hardly worth mentioning, but it at any rate shows what may be done out of a very small garden; and of which we had at that time other still more striking examples.

I may just mention further, as a last recollection, the case of a small county Rose association of which I was for some time hon. secretary, which held its meetings in the various parts of the district; the committee being always hospitably entertained at the big house, and the lady of the place giving a large garden party in our honour. It is the one concluding act that I am anxious to advertise. At the close of each show, just before the boxes were removed, our hostess was accustomed to send down huge hampers and beg for Roses for the London hospitals—it may be imagined not in vain. All the pleasure gained from those show Roses in the growing, and cutting, and exhibiting I imagine was far eclipsed by the last stage of their histories.

"Blessed is the man that considereth the poor,
The Lord will deliver him in time of trouble."



Rose Arch at King's Walden Bury.

And so I conclude my senile soliloquy. I shall never see another N.R.S. show. It may be I shall never assist at another Rose show at all. But I shall never lose my love of Roses. To them I owe some of my best friends, happiest hours, and also freshest memories. Nay, if there is any such knowledge I shall gratefully welcome at the end one last wreath of them.

"Manibus est imis Rosa grata, et grata sepulchris,
Et Rosa flos florum." (OVID.)

"The Rose is flower of flowers, I ween;
Its memories are ever green.
Above, Rose wreaths on coffins pile;
Beneath, for Shades, shade Roses smile."

"Rose! for the banquet gathered—and the bier!
Rose! coloured still by human hopes and pain.
Surely, where death is not, nor change, nor fear,
Yet shall we meet thee, Love's own flower, again."
(HEMANS.)

January, 1908.

A. C.

A Rose Arch.

Roses are an ever-growing feature of the handsome and extensive gardens of Mr. and Mrs. T. Fenwick Harrison, at King's Walden Bury, near Hitchin, in Hertfordshire. Mr. Hartless is the head gardener, and treats the Roses liberally. Particular care is expended upon the planting, and quite a cubic yard of soil is taken out where most of the large ramblers are planted, and the hole is filled with the best loam and manure available. No wonder that rampant, vigorous, healthy growths are made, and that flowers are abundantly plentiful. It is the same with Roses in beds; and this liberal treatment is everywhere justified. Our photograph shows one of the arches at King's Walden Bury, the variety being Virginian Rambler. In these gardens there is a beautiful Rose pergola, and such magnificent umbrella-headed standards as we have seldom seen equalled elsewhere.

Hardy Plant Notes.

Dividing Perennials.

Where borders of hardy perennials have not been overhauled in autumn it is necessary to go over them in spring, not, in many cases to replant them, as that would injure the display of bloom for this year, but to reduce those which are overgrown and to take pieces off for propagating purposes. Many Asters, Sunflowers, and things of spreading growth should be either taken up, reduced and replanted, or pieces taken off. It is a great mistake, as many do, to take away the outside of a clump, as this is the youngest and most vigorous part of the plant. Some of the outside growths should be replanted, and the effete central portion disposed of on the rubbish heap or burned with other rubbish. A large clump can be cut through with the spade, and the best time for this is when the young growths begin to push through. If left too long the shoots will be too long to do much with safety, as some of them are sure to be broken off at the tender stage at which they are. Where

stock is wanted a growing crown with a few roots attached will supply a good nucleus for a plant. Where a large clump has been lifted and broken up some fresh soil and some manure should be supplied.—S. A.

Aubrietia Bride'smaid.

The soft pink Aubrietias supply a want in the garden at this season, and Bride'smaid is one of the most pleasing of those possessing this tint, one which is not at all plentiful. It is paler and more delicate in colour than Moerheimi, and one can hardly say that the two are rivals, for each has its own value. For those, however, who wish an Aubrietia of delicate pink, almost bluish hue, this neat little variety can be confidently recommended. It is one of several raised and sent out by Messrs. Barr and Sons, and it certainly reflects credit on the firm with whom it originated. Its habit is closer and more compact than that of Moerheimi, so that it quite lacks the looseness of growth and rather ungainly habit of a few of the named Aubrietias. One does not refer to Moerheimi as one of these, for that good Aubrietia is neat and excellent in its growth.



Good type of Double-flowered Tuberous Begonia.

New Begonias.

By the courtesy of Messrs. T. S. Ware, Ltd., Feltham, Middlesex, who still stand quite in the front rank as specialists in tuberous Begonias, we are privileged to present types of double Begonia flowers, and of a well-grown plant, which represent the ideal and the highest development yet attained with this subject. The plant speaks for itself, and if its appearance in our pages inspires a few growers to a more determined pursuit of success with the double Begonia, our effort will not have been fruitless. Truly the double Begonia is a plant that tests the skill of cultivators, but it richly deserves the very strictest attention. Full descriptions of their recently introduced Begonias appear in Messrs. Ware's list, and we therefore confine ourselves to naming the colours of the flowers figured on page 81:—Queen Alexandra, white, edged crimson; Countess of Ilchester, deep cream; Lucy Evans, white; Mrs. W. H. Apthorpe, creamy white; Mary Pope, pure white; W. L. Ainslie, pale cream; Florence Luxton, orange-salmon; Countess of Dartmouth, creamy white; and Mrs. Arthur Paget, salmon-pink.

Begoniaceæ.

Methods of Propagation.

The order Begoniaceæ comprises a large number of useful garden plants, and the only genera are Begonia and Begoniella (which is not yet, so far as I know, in cultivation). Flowers apetalous; perianth single, pistillate flowers having the perianth two to eight cleft, staminate ones two to four cleft; stamens numerous, collected into a head. Leaves alternate, stipulate.

Begonia (named after M. Begon, a French patron of botany) is the generic name of a large number of species (nearly 400) given specific titles, most of which are succulent herbs or under shrubs (a few climbers), in many of which the stem is reduced to a tuberous rhizome, whilst some are distinctly tuberous. They are found native in all tropical moist countries, especially South America and India, not known in Australia. The cultivated species are not more than 150, and these only, or for the most part, in botanical collections. These, of course,

are exclusive of garden hybrids and varieties, which from the rich colours and beautiful form of the flowers, their prettily formed and marked foliage, and free growing, free blooming nature, have long marked them out as favourite garden plants, and almost to the exclusion of the species in private establishments, so great have been the results of skilful cultivation and careful cross-breeding among plants during the latter half of the nineteenth century.

The species and hybrids or varieties now in cultivation may be divided into three sections: Tuberous rooted, perpetual flowering or evergreen, and Rex or ornamental foliage. The tuberous-rooted Begonias may be described as a new race, characterised by a tuberous rootstock, annual herbaceous stem, large handsome flowers, and of half-hardy or almost hardy habit. They date not further back than 1865 or 1867, one of the species from which they have been originated being B. Veitchii, introduced from Peru in 1867, and have been obtained by crossing and recrossing the several tuberous-rooted species found in the temperate regions of South America. For a long time it was found that to increase any particular kind of garden origin seeds were useless, none or few of the hybrid or seedling forms perpetuating themselves through their seeds, although equally beautiful sorts may be raised from them. But experts so persevered in their efforts with Begonia hybrids that now the large, symmetrical blossoms of both single and double-flowered varieties come relatively, if not perfectly, true from seed, and this had from seedsman in separate colours, such as crimson shades, rose shades, pure white and yellow shades; and from the best strains of seed it is easy with a little patience to raise a fine stock of plants, possessing the highest decorative qualities with a probability of securing some striking novelties of exceptional merit.

Seed Sowing.

The seedlings from a January or February sowing of choice hybrid tuberous-rooted Begonia seed will, under generous treatment, come into bloom during July and August. In the autumn they will become large plants for blooming again in the following summer. If a sowing be made in July or August this will furnish young stock to stand through the winter and display their beauty in the succeeding year.

Filling a pot or pan half full of crocks or other porous material for drainage, cover over with moss or the rougher parts of the compost, and then fill to within a quarter of an inch from the top of light, fine-sifted soil, press down level, and before sowing sprinkle the soil with water. Sow the seed evenly, and place over this the smallest coating of the very finest sandy loam, very old cocoanut fibre refuse or leaf mould and sand, but only the barest sprinkling to keep the seed in place. Place in a house with a temperature of 60deg to 65deg minimum, and cover the pot or pan with a pane of glass. Shade from sunshine, and if paper be used until the plants show signs of life, gradually expose to light.

Germination is both slow and irregular, and this must be borne in mind in respect of pricking off the seedlings. This should be attended to as soon as the plants are fairly visible, and have roots a quarter of an inch long, so as to prevent danger of damping off, lifting each plant carefully with the point of a stock or pencil, and insert in small holes in duly prepared pots or pans of sandy soil. With a small vessel containing water, and the stick or pencil dipped in it, the

manipulation of the seedlings is easily effected, as they hang to it and can be easily placed in the holes prepared for them, a gentle pressing down completing the operation. Placed in a similar temperature the plants will grow on freely, and by shifting on as the growth may require nice plants may be had by bedding out time, or they may be grown on in pots for greenhouse or conservatory decoration. As the seedlings come up, or at least progress, somewhat differently in time, the process of pricking off should be followed up so long as they appear and require transplanting. When well established reduce the temperature from 60deg to 50deg minimum, and keep near the glass; in a word, harden off if intended for bedding out or even for growing under glass in pots, a stocky habit being all-important for appearance and free-flowering.

The fibrous-rooted Begonias, especially those of the *B. semperflorens* section, which are of compact growth, with small foliage and flowers, and excellent for bedding or pot culture, continuing in bloom till late in the autumn, and coming fairly true from seed in scarlet, rose, and white, may be raised similarly to the tuberous rooted. Similar remarks apply also

The Rex or ornamental foliage Begonias are usually increased by "leaf cuttings," which succeed best when laid on cocoanut fibre refuse, spent tan, or sand. In preparing the leaves, old, well matured ones should be selected, and incisions made on the under side with a sharp knife across the principal nerves. They should then be placed on the fibre, tan, or sand, and held down by means of a few pieces of crock, or even small pegs across the nerves pushed through the leaf from above. Shaded from bright sunshine, and under this treatment, bulbils will form on the lower ends of each section of nerves of the leaf, and these, when large enough may be removed from the bed and potted.

The tuberous-rooted section succeed in a mixture of good loam, leaf mould, and a little coarse sand, with some well rotted manure. Firm potting is advisable, just keeping the tuber below the surface of the soil, allowing plenty of drainage and some rough or lumpy portions of the soil on it. Plenty of air and light are essential at all stages of their growth, though when grown under glass the flowering plants require to be

Queen Alexandra.

Countess of Ilchester.

Lucy Evans.

Mrs. W. H. Apthorpe.
Mary Pope.W. Ainslie.
Florence Luxton.Countess of Dartmouth.
Mrs. Arthur Paget.

Some of Ware's Best Begonias.

to the Rex or ornamental leaved varieties, something beautiful and possibly new being secured from a packet of seed saved from the finest and latest introductions.

Cuttings.

The perpetual flowering or evergreen Begonias are raised, as a rule, from cuttings, being far the most shrubby or semi-shrubby, and most suitable for greenhouse and conservatory decoration. Some species and varieties are summer bloomers, while others bloom in winter, such as *Carrieri*, *Gloire de Lorraine*, *Knowsleyana*, *Manicata*, and *Weltoniensis*. Of these *Gloire de Lorraine* takes the lead in popular estimation conjointly with *Turnford Hall*, the latter a return to the *B. Dregei* parent of *B. Gloire de Lorraine*, the other being *B. socotrana*. Cuttings springing from the base of the plants that have been rested after flowering are the best, and taken off when sufficiently long and inserted in small pots or thumbs in sand, loam and leaf mould, and placed in a warm damp house with a temperature of 65deg to 70deg, they strike or root, as the saying is, "like weeds." The cuttings also strike freely if inserted in a bed of cocoa-nut refuse in a moist stove or propagating frame, and in this the cuttings may remain until well rooted, then potted and grown on.

shaded from the sun during the hottest part of the day. In hot weather they need watering freely, not allowing the plants to become dry.

The perpetual or evergreen Begonias do well in a mixture of loam and leaf mould, with a little sand and manure; and though they may be grown or placed in the greenhouse or conservatory, the cool stove or intermediate house is best suited to their growing requirements.

The Rex or ornamental foliage Begonias, always beautiful and attractive, and on that account very useful to associate with ferns on rockeries, or along the edges of walks and under stages, require a light rich soil, plenty of moisture, and a shaded position in a cool stove or warm greenhouse.

In recent years both the tuberous-rooted and some of the shrubby Begonias, particularly the favourite *Gloire de Lorraine*, have suffered severely from the attacks of the rust mite (*Tarsonymus tepidarium*), the pest sometimes ruining the plants. For this vaporisation with nicotine every few weeks is advised, or the spraying or dipping of the plants in tobacco water, not too strong, at intervals of a few days, say four days or a week, two or three times in the case of infested plants, while cuttings should certainly be dipped in tobacco water and drained before insertion.—G. ABBEY.

Unigenous Bedding.

SMALL BEDS OF ONE FLOWER.

That plant of almost universal, though recent popularity, *Gypsophila paniculata*, is well adapted for our purpose. The effect of a plant 5ft in height, and as many in diameter, is distinctly good. This plant is very fond of chalk; in fact, its very name means "lover of lime," and moreover it is a plant which takes at least three years to make a really fine specimen, even if it is a good plant to start with, and it improves for a year or two after that. Hence, in the making of a bed for this, a very thorough preparation is necessary, and basic slag or bone meal should be liberally mixed with the soil, as well as animal manure. As it makes little, if any, show the first season, it should simply occupy the centre of a bed of other flowers the first year; plants which, while making the bed presentable, will not grow tall or large enough to smother it. The second year it may make a fair-sized plant, needing only a border of some low-growing plants round the bed, while the third year it may be expected to fill the bed and even spread over the border, producing a good effect from June to September, even looking very well right into the winter if it has been properly tied up in the summer. All the thin, weedy shoots should be ruthlessly pulled out in the spring, and some of the larger ones as well, and a strong stick given to each of the rest.

In the double Chinese *Pæony* we have another plant which needs at least two or three years to develop its full beauty, and therefore needs similar treatment as regards the preparation of the soil, covering the ground the first season, tying up, &c., always remembering to do this latter as soon as there is anything to support, without waiting till a storm has demonstrated the necessity of it. These Chinese *Pæonies* last in bloom a fairly long time, as there is such a succession of blossom. When flowering is over they present the appearance of rather handsome shrubs, getting bronzy-red in the autumn. The position chosen for them should be one which does not get the morning sun before ten o'clock, as they are subject to damage from the sudden thawing of their tissues on a frosty morning in April or even May.

The hardy shrubby *Fuchsias* are a very different type of plant, and in districts, usually near the sea, where they escape being cut down to the ground every winter, they form large handsome bushes. Three of the best for this purpose are *Fuchsia coccinea*, *F. globosa*, and *F. Riccartoni*.

A clump of well-grown *Sea Hollies* are very effective and last a long time in a presentable condition, though never very showy. The best for the purpose is, perhaps, *Eryngium Oliverianum*. Unfortunately, *Sea Hollies* move very badly, and therefore other arrangements must be made for the bed for the first year, or even two. The same applies to a less extent to the *Great Sea Lavender*, *Statice latifolia*, which may be said to last in beauty almost through the year by virtue of its large shining leaves all the winter. Another very strong-growing plant of a different habit is the *Globe Thistle*. The variety *Echinops Ritro*, if properly tied up and well grown, forms a very fine specimen plant, and giving no trouble by crowding out other plants, as it often does in the mixed border. Some of the perennial *Sunflowers* similarly make good specimen plants, and none better than *Helianthus multiflorus maximus*, which, with good cultivation will grow 7ft high and produce fine showy single blooms from July till October, besides making a handsome vigorous plant in the earlier part of the summer. It has the advantage, too, of always having its stems clothed with large, dark green leaves down to the ground until the late autumn, and it is not unsightly up till Christmas in a mild season.

Some of the *Michaelmas Daisies* are worth growing in the same way, though in a dry season, unless well watered, they are apt to become very bare below, besides which one has to wait all the summer for a display. Still, they will grow where choicer things will not. The same remark holds good of the Japanese *Anemone*, which will grow in almost any shady place if not too dry, and form a handsome plant throughout the summer, though its blossom does not come till August. I have seen large clumps consisting of a dozen stems with the turf almost close up to them. The pure white variety is the best, and has long been deservedly a favourite in gardens, old-fashioned as well as new. It should be left for years without being disturbed. The *Hollyhock*, too, should not be forgotten in this connection.

Some of the *Lilies* can be used to advantage in this way, and when the bed is being prepared the right sort of soil should be put in. Some, such as the *Tiger* and *Nankeen Lilies*, will grow in any ordinary garden soil, the former especially making a very fine show and continuing green all the summer. The *Torch Lily* (*Tritoma*) may be mentioned here, as it is specially adapted for our purpose, forming a large handsome clump of foliage all the summer, and displaying its Red-hot *Pokers* all the autumn and even until Christmas in a mild season. Other bulbous, or tuberous plants may be used in the

same way, such as some of the *Day Lilies*, the *Gladiolus*, some of the *Funkias*, *Cape Hyacinth* (*Galtonia candicans*), &c., in some cases with an edging or carpet of spring flowers.

In shady places some of the hardy bamboos often succeed where few other things will, and the effect of a large clump of one of these standing quite by itself is certainly good. A fair amount of moisture is essential to success. A bed of a very different sort is that formed by the *Clematis*, planted in the centre and trained over a pyramidal framework or piece of wire-netting, or, best of all, over an old tree stump in the middle of the bed. One more suggestion—and this article is simply a list of suggestions of different classes of subjects for the purpose—is to use these small beds for groups of spring bulbs, by preference those which look more natural in a setting of grass, such as *Snowdrops* and *Narcissi*, and then when these are taken up, to use the bed for some large specimen plant or group of plants which have been wintered under glass.—A. PETERS.

Notices of Books.

FLOWERS AND FRUIT FOR THE HOME, by J. L. Richmond; published by T. N. Foulis, 23, Bedford Street, Covent Garden, W. C., and 15, Frederick Street, Edinburgh; 2s. 6d.

This book provides interesting reading on a few subjects suitable for cultivation by amateurs. As the author states in the introduction, most of the matter has been collected from the pages of "The Queen." To these, a chapter or two on other subjects grown in most gardens should have been added. The mixed flower border (the pride of many small gardens), and annuals, are worthy of a chapter each. Imagine a garden without *Asters*, *Stocks*, *Sweet Peas*, *Antirrhinums*, *Pinks*, or *Wallflowers*, none of which are mentioned. Useful information is given on *Daffodils*, *Anemones*, *Begonias*, *Liliums*, *Roses*, *Carnations*. Fruits are treated in four chapters, but the most important fruit, namely the *Apple*, is omitted. The editor would have been well advised to have rewritten some of the chapters. *Liliums* have a section to themselves, so that it was unnecessary to deal with them under "Hardy Bulbs." In the same way perpetual *Strawberries* occur in two chapters: one devoted to them alone, and also as small fruits. *Xanthoxerxes sorbifolia*, we are told, is a new introduction from China. The "Botanical Magazine" figure, published in 1887, was drawn from a plant which flowered in the Cambridge Botanic Garden the previous year. The author states in the introduction a good reason for writing such a book, but this has scarcely been accomplished, namely, to provide the amateur with "some practical guidance in choosing the best varieties of plants for the home garden"; also "to give the details of the cultivation necessary to success in growing them."

THE FLOWER GARDEN, by T. W. Sanders, F.I.S.; published by W. H. and L. Collingridge, 148 and 149, Aldersgate Street, E.C. Price 7s. 6d. net.

This book, as the editor suggests in his "Forewords," is in the way of Robinson's "English Flower Garden," but "issued at a price within the means of many thousands of owners of large and small gardens." Excluding the index at the beginning of the book, and sixty-four full-page illustrations, which, by the way, are exceptionally well executed, the work runs to 454 pages. These are divided into three parts, dealing with (1) the formation and management of a flower garden; (2) hardy and half-hardy plants; (3) trees and shrubs. The first part treats the subject in a very complete manner, and is full of useful hints on the laying-out of a garden, the preparation and draining of the soil, the making of lawns, paths, shrubberies, pergolas, &c., while planting, pruning, and garden enemies (diseases and pests) all receive attention. The second part is divided into eight chapters, treating on annuals, perennials, hardy bulbs, water plants, ferns, climbing plants, &c.

One or two plants are omitted which we think ought to have found a place. In the paragraph on *Anchusas* no mention is made of the beautiful *Dropmore* variety. The remarks made by the author: "We cannot recommend *Anchusas* for culture in small gardens, they are too coarse and weedy," certainly cannot be applied to this particular variety. *Arctotis grandis* is worthy of a place amongst those mentioned. The beautiful *Sweet Pea Queen Alexandra* should have been included in the list of the twenty-five best varieties given. The selection of bedding zonal *Pelargoniums* cannot be considered complete without *Paul Crampel*, the best of all scarlet "*Geraniums*" for bedding.

Crammed full of useful information as the book is, it should prove of infinite value to anyone proposing to lay-out a garden on a large or small scale. Those who already have a garden will find the book of great value for reference. A special word of praise is due to the excellent index; both botanical and common names are given, so that it is possible to find anything required with a minimum amount of trouble.



The Hardy Orange Tree.

The hardiest member of the Orange family, *Egle sepiaria*, better known as *Citrus trifoliata*, is only cultivated in a few gardens, where its possession is rather a subject of pride to its owners, although it is seldom that it ripens its orange-yellow fruits save well to the south. It flowers fairly well when it has reached some size, but in a young state is not a free bloomer. The flowers are white, and present all the charms of those of its family, and so require no particular detail. It has stiff, strong spines on its branches, and its leaves are of a pleasing green. When well established it is sometimes 6ft or 7ft high in this country, but we seldom meet with it at more than 4ft or 5ft high. It can be cultivated in ordinary loam, and may be planted either as a bush or trained against a wall.—S. A.

Plukenet's Herbarium.

A few words respecting the Herbarium and its owners may be of interest. Leonard Plukenet was born in 1642. He practised as an apothecary at Westminster, and had a botanic garden there. After many hardships he was appointed superintendent of the gardens at Hampton Court, and Royal Professor of Botany. He died about 1706. Sir Hans Sloane, who was born in Ireland in 1660, formed a valuable museum of the rarest productions of Nature and Art, which, together with his library of 50,000 volumes and 3,566 MSS., was purchased for £20,000 by Act of Parliament, and made part of the collection of the British Museum. He purchased Plukenet's herbarium, and offered Petiver £4,000 in his life time for his collection of rare and curious plants, animals, and insects.—S. B. Dicks (in "The Sweet Pea Annual").

Begonia, Gloire de Seeaux.

The usefulness of this splendid hybrid Begonia for decorative work in winter and early spring can scarcely be too highly valued, the flowers being borne in large quantities, and lasting for at least two months. It is a hybrid between *B. socotrana* and *B. incarnata purpurea*. It grows about 18in high, and makes strong upright stems, the leaves being of a bronze colour. The flowers are a delicate pink, which form dense heads. It can easily be propagated by taking shoots from the base of a cut-back plant, inserting them in nice sandy peat, and placed in a brisk bottom heat in March or April. In this they will root quickly, and if kept growing in an intermediate temperature in rich, light open soil will make fine plants by autumn. When growth is completed they should be given all air and light possible to ripen the shoots, keeping them in an intermediate house. They will commence to flower in November, the plants being in their best in January and February. This variety makes fine specimen plants, also being most useful for decoration purposes.—GEORGE W. SIZER, Elsham Hall, Lincoln.

Idesia polycarpa.

Of the *Idesia polycarpa* there are very few trees in cultivation in America (writes Mr. Meehan in "The Florists' Exchange.") It is from Japan, and unlike the greater number of the trees from that country, it is not hardy north of Philadelphia. In the more Southern States it would thrive well; and considering how handsome it is in its foliage and habit of growth it will become a popular tree. The small heads of flowers consist nearly altogether of yellow stamens. The display is not great, but it is interesting and pleasing, being so uncommon. The tree from which the spray of flowers came is in the grounds of Meehan's Nurseries, Germantown, Pa., and so far as we know it is the first of it to flower in these parts, though there are other fair-sized trees in the vicinity of

Philadelphia. Botanical works say of the fruit that it is orange coloured, and about the size of a pea. In this case, when the fruit was ripe, a tree containing it would be very ornamental. Japanese seedsmen are offering seeds of this tree; and it can be increased by soft wood cuttings under glass as well as from seeds.

Androsace lactea.

The Androsaces are hardy alpine plants, of a lowly, tufted nature, that love the fissures of rocks high upon the mountains. They agree in liking a well-drained position. The one here figured is of the smooth-leaved type, and would appear to be quite amenable to cultivation in pans. The photograph was taken early last year in the alpine house at Kew, where at this season and onwards till May there is a charming display of all sorts of hardy dwarf plants. *A. lactea* (syn. *A. pauciflora*



Androsace lactea.

—a misnomer), is Austrian and Pyrenean, and is notably free growing. In the open air it flowers in June, but under cold frame or cool house treatment it blossoms in March. The flowers are quite white, with a yellow throat. It likes a chalky soil and a well-lighted position.

Brewer's Spruce.

About a year ago we drew attention to this interesting and rare Spruce, known in the United States as the Weeping Spruce, and to botanists as *Picea Breweriana*. It was said to be local in its distribution, forming small groves at elevations of about 7,000ft on the Siskiyou Mountains in California, and at 4,000ft to 5,000ft on the Illinois River in Oregon. It grows to a height of about 100ft, with a trunk 3ft in diameter. The whip-like pendulous branches, coloured bright red-brown in winter, are its most striking characteristic. It was thought that a small example of this tree in the Kew collection was the only one in Europe, and the story went that from some cause or other the tree was likely to disappear from its wild habitat. Evidently this was an alarmist statement, and we are pleased to be able to inform our readers who desire to possess this really handsome Spruce that young trees of it are offered at from 5s. to 8s. each by Mr. H. A. Hesse, Weener, Hanover, one of the principal Continental dealers in hardy trees of all kinds.—("Field.")

Cape Heaths.

We say "Cape Heaths" to distinguish the particular kinds cultivated in the greenhouse from the hardy species which are grown in the open borders, these being natives of Europe; but although indebted to that portion of the African continent known by the name of the Cape of Good Hope for an immense number of very fine species, many of the most exquisitely coloured and most popular kinds now grown are varieties produced at home, the result of cross-breeding. True, *Ericas* in a state of Nature are found only in Europe and this particular point of South Africa, although other members of the order have a wide distribution; recently indeed it has been asserted that an English *Erica* has been found growing wild in North America.

Heaths are generally (and it must be admitted with some truth) considered rather difficult to grow, and this has been scored down as a black mark against them; but the chief point connected with their successful cultivation lies in strict attention to their peculiar requirements. Another black mark against them is that they are slow-growing, and require several years to become large specimens; but although this is in reality true, everyone does not require large specimens, whilst even as young plants the majority of them bloom profusely, and are extremely handsome, and do not soon outgrow bounds.

Heaths are somewhat liable to die suddenly, and therefore a few young plants should be added to the collection from time to time; but if the plants are judiciously watered and not over-potted, the death-rate will be reduced to the minimum. When the plants show signs of growth any that want more pot-room should be shifted in order that the roots may at once work into the new soil, as we consider this better than repotting periodically. Respecting the propagation of Heaths we shall say nothing, as it will be much cheaper even to the smallest amateur to purchase young plants, say in 60 or 48-sized pots, than to attempt the propagation of them at home, although all who grow a few kinds may always find a pleasant occupation in hybridising and raising new varieties from seed, and it may be that some new and desirable form may reward the operator, whilst worthless kinds should at once be discarded. In commencing the cultivation of this handsome and showy family of plants we may seasonably give a selection of the best kinds flowering in January.

Erica gracilis.—Of this species there are two varieties, one which commences blooming about October and continues to about the end of the present month is called *E. gracilis autumnalis*, and another, which will soon succeed it, is called *vernalis*; saving the difference in time of flowering there is little to distinguish them. This kind is very ornamental as young plants grown in 48 or 32-sized pots, when they may be used for table decoration or as window plants, serving to make the more sober ornamental-leaved plants gay by contrast, and thus form a welcome addition to our homes during the dull winter months. It is an erect-growing species, the leaves being smooth, small, and linear. Its flowers are small, reddish-purple in colour, and produced in the greatest profusion upon all the little branches, thus forming long and dense spikes which are very ornamental long before the blooms are really open.

E. hyemalis.—Like the preceding, this belongs to the soft-wooded section, and is extensively grown for table and indoor decoration. At this season it also makes a very effective object grown into a medium-sized specimen, and is invaluable to cut from; for as the plant must be cut-back hard after flowering, it is not detrimental to cut from it when flowers for vases or bouquets are required. The leaves are linear acute, clothed with short hairs, and dark green. The blooms are bell-shaped, and when well exposed to the influence of the air the lower half is deep rosy pink and the mouth white, but when kept in a confined atmosphere they become wholly white, or but slightly tinged with pink at the base. It should be encouraged to grow freely, when the whole length of the dense leafy spikes will be covered with bloom.

E. Willmorei superba is a fine robust-growing soft-wooded Heath, similar in general habit to *hyemalis*, but larger in all its parts. The flowers also resemble the last-named kind, but the bells are much longer. It should be treated in the way recommended for *E. hyemalis*, when it will be found to come into flower just as that kind passes away, and thus form a good succession to it.

E. mutabilis.—This is a perpetual bloomer, we therefore introduce it in the first month. It is a rather slender-growing plant, and seldom well furnished with foliage, but its bright flowers are very attractive; and as the plant really requires constant cutting to keep it down, the blooms may be used with much advantage for bouquets, &c. The leaves are bluntly linear, hairy, and deep green. Flowers produced in terminal umbels, tubular, fiery red in colour. This species delights in a dry and airy atmosphere; in other situations it is very apt to become disfigured with mildew, both in summer and winter.—W. H. G.

Castlewellan, Co. Down.

To those interested in our choicer and more beautiful *Coniferae*, as well as the rarer foliage and flowering shrubs, there are, probably, but few places more noted than Castlewellan, the romantically situated Irish home of the Earl of Annesley, amid the Mourne mountains. That this beauty spot is climatically favoured will be obvious to those following our brief notes, for not a few of the exotics indigenous to America, Northern India, China, Japan, and the Antipodes, which here bear eloquent testimony to their congenial environment, exist but on sufferance in less favoured localities, or are conspicuous by their absence.

Again, the colour and luxuriance of foliage here attained by what may be termed the commoner and more frequently met with species cannot fail to strike the visitor. Notably is this the case with *Cupressus Lawsoni lutea*, which has been freely planted, superb specimens some 15ft high in their lustrous golden hue, forming a pronounced feature amongst the quieter toned evergreens. It is in the older portion of the shrubberies, in which Lord Annesley commenced his interesting planting thirty years ago, that the finer specimens of this beautiful *Cypress* and other *Coniferae* are met with. The shrubberies at Castlewellan, however, are not the congested spots the name too often implies; each tree or shrub has ample space to develop character and natural proportions, as well as show them to advantage. Certainly the soil is not of a nature generally associated with high fertility, and it appears to be freely mixed with rocky debris primevally detached from the granite backbone of the mountain chain; consequently one suspects, rightly or wrongly, that the stations for planting have been specially prepared. The intensely blue flowers of the normally pink *Hydrangea hortensis*, huge clumps of which were flowering profusely, bespeak iron entering largely in the soil. Possibly this has also some connection with the luxurious growth in question, possibly not, in any case giant bushes of *Desfontainia spinosa* testify to something more than climate, ultra-favoured as that is. Not less remarkable is the glaucous hue of the silver Fir tribe, culminating in the intense silver blue of *Picea Costeri*. Probably atmospheric humidity tells its own tale, for very noticeable in various places was the Flame Flower, *Tropaeolum speciosum*, which loves such conditions.

Amongst the *embarras de richesse* of tree life, although limited time precluded all but the briefest of note-taking, under *Coniferae*, which dominates the planting, mention must be made of *Tsuga Brunoniana*, *Sciadopitys verticillata*, 10ft high; *Arthrotaxus laxifolia*, *Cedrus deodara* alba spica, a very elegant and striking variety of the Himalayan Cedar; *Abies morindoides*, a distinguished form of the Indian Spruce, which probably attracted more notice than anything seen during the visit, the specimen in question, planted twelve years ago, being about 15ft high; *Abies bracteata*, 20ft high; *A. Veitchii*, and *A. balsamea Hudsonica*, the latter a veritable pigmy of the tribe.

Among the *Piceas* grand specimens of *nobilis* are much in evidence, as are various Pines, among the more distinguished of the latter being *P. concolor violacea*. *Wellingtonias* are represented by the finest pair it has been the writer's privilege to see, and these, it was understood, were planted forty years ago, but very conspicuous both for size and vigour were giant *Arucarias*, feathered to the ground, *Taxodiums*, and others of that ilk, whilst among deciduous trees *Quercus platyphylla* with leaves a foot long (taped on the spot) is a noble Oak unrivalled in its way.

In the miscellaneous section of hardy plants—hardy at Castlewellan—were seen *Dracaena indivisa vera*, a glorious species with leaves 7in across the broadest part, the specimen in question having been raised from seeds obtained by the late Mr. F. W. Burbidge direct from New Zealand; *D. purpurea*, as the name implies, a deep hued form of a narrow leaved kind; *Casalpinia japonica*, *Lomatia pinnatifolia*, *Elaeagnus* in variety, *Crinodendron Hookeri*, *Eucryphia pinnatifolia*, 10ft high, probably the largest specimen in the British Isles; *Parrotia persica*, specimens yards across, growing prostrate on the grass, as is also *Grevillea rosmarinifolia*, some 12ft over by 2ft high; *Enkianthus campanulatus*, a Japanese shrub with rich crimson-purple foliage; and *Glyptostrobus heterophylla*. Of lesser things, but not less interesting, comprising, indeed, a great collection, were noted *Hypericum patulum Henryi*, *Spiraea Margaritæ*, *Senecio Fosteri*, *Catanopsis chrysophylla*, and *Vitis Thompsoni*, the latter being a rare purple vine of Clematis-like foliage and habit.

Rhododendrons, numbered by thousands, find a happy home at Castlewellan, although it was something of a surprise to meet with such a grand example of the glorious Sikkim species, *R. Falconeri*, as here seen. As a matter of fact, however, there are many surprises in store for the visitor to this lovely Irish home, and with passing notice of the towering shapely examples in quantity of *Pittosporums Mayi* and *Colensoi*, one would fain

attempt to describe the situation and surroundings of what, from a landscape point of view, is but rarely, if ever, seen about the stateliest of stately homes. From various vantage points of the extensive demesne, covering an area of over 1,700 acres, delightful peeps are ever presenting themselves, but, perhaps, it is not until the higher ground of the deer park is reached that the superb panorama stands fully revealed. From here one looked back on Slieve Donard, in the near distance, the monarch of the mountain range, 2,796ft high, with an amphitheatre of lesser links curving around and forming a side guard, as it were, to our view point, on one ridge of which a retreating herd of deer momentarily stood out in high relief against the sky line.

Small lakes, about which fine clumps of bamboos are met with, including one notable far-stretching planting of *B. palmate*, and masses of *Gaultheria shallon*, claim notice in descending to the lower level of the park proper, where a noble sheet of water, covering 107 acres, adds its own peculiar charm. Looking back across this lake one sees the castle, a building of comparatively modern date, replacing an ancient pile, the basal outlines of which close at hand are preserved in Box edging. Modern as the present castle is, however, its design

Garden Ornaments.

Still Water—The Bathing Pool.

In all ages the pleasures of the open-air bath have afforded a welcome diversion or engagement to those who are so situated that they can frequently indulge in it. The daughters of the Pharaohs bathed in the Nile, as the Greeks did in later times in their rivers; and the open-air baths of the ancient Romans are well remembered, some even existing to this day at Bath (named from the Roman baths), in England, and at Chester and other places. Some of these we have seen and admired. In much later times the water pool for bathing in has been patronised by Royalty, as we saw in Queen Caroline bath in Greenwich Park, when on a visit there last summer. Sanatoria have also been established in different parts of Europe, for the use of consumptives, into which the cold water open bath has been introduced, because of its health-giving, admirable properties. A covered-in swimming bath—that is, one with a glazed house over it, like a huge conservatory, has been made at Skibo Castle for Mr. Andrew Carnegie, and as



A Bathing Pool.

and the solid material (granite) of which it is composed, carry one back to mediæval times, and form a picture of massive repose in a picturesque framing.

In concluding these brief notes, taken during an excursion of the Irish Gardeners' Association, on September 12, one feels an apology is due for their brevity, but a day in which the rail absorbed eight hours, left but small opportunity to do even a measure of justice to Lord Annesley's unique collection.—K., Dublin.

"Pictorial Guide to Practical Gardening."

This paper-covered book of 260 pages, 5in by 8½in, containing numerous line-drawings, is issued by "Garden Life," Hatton House, Great Queen Street, E.C., at 1s. net. There are seven sections—floral, plant, bulb, shrub, fruit, vegetable, and miscellaneous; and thus "the whole art of gardening is graphically described." Surely a definition of the subjects expected to be found in each section might have been included; but that is not so, and thus we find such very varied subjects as the Ampelopsis, Winter Cherry, Maize, and Mistletoe described along with Dracaenas, ferns, and palms in the plant section. Only 8½ pages are accorded to the "shrub section," which also embodies such tender plants as Acacias, Epacris, and Solanum capsicastrum. The drawings are somewhat crude, and the arrangement of the book is hardly logical, yet the beginner will find many hints therein.

the water can be warmed somewhat, this allows of bathing throughout the whole year. But such bathing pools as the one at Aldenham (here figured) are mainly for the warmest days of summer. Obviously, such a pool will be hedged about, or be made in some convenient yet secluded spot. A house or dressing-room ought to face one part of the pool, or a door may open upon it, the convenience for dressing being near by. It does not matter how deep the water is if swimmers are using the pool, but a shallow end for those who cannot swim ought to be made. A boat may also be necessary in case of accidents.

Of course, water fowls are hardly admissible on pools intended primarily for bathing. If, however, those pools are only play places for the younger members of a family—the children—for the sailing of miniature yachts, fowls are not objectionable, and may even be acceptable.

The figure here presented portrays a pool of the gardenesque pattern. But in many situations a formal aspect may be more fitting. In gardens of two hundred years ago, and in some of those of the present day, the straight-edged canal furnished a pleasant feature. We recall the magnificent grandeur and placidity of the long noble canal at Kearsney Court, Dover, with its smooth and straight walks bordering on either side, its huge, umbrageous trees overhanging the waters, and pedestaled urns on either side, about midway, denoting the junction of right-angled walks, and banking up the east end of this long canal stood a classical bathing pavilion.



Canker in Apple Trees.

I am pleased to reply to the query of "A Grower" anent the above matter, but let me say at the outset he has not quite grasped the purport of what I wrote. What I did write was this, "Growers, as a rule, do not now fear canker so much as it was feared years ago." Excepting cases where Apples are grown on very unsuitable soil, canker may be successfully combated by the methods so well advocated by "J. W." in a recent leader (page 479). Let me refer "A Grower" to that leader, also to the excellent remarks of Mr. T. Arnold (page 63), as both advocate methods which I have proved by practice are sound, and calculated to keep canker under control.

Personally I do not fear canker, for although occasionally I have young trees affected, I can always manage to stamp it out by root-pruning, top-dressing, and wound treatment. Dealing with old trees which have been badly cankered for years, however, is quite another matter, and in their case the wisest plan is, as a rule, to uproot and burn them. It is now generally admitted in this country that there are two forms of canker, the more common form causing wounds and excrescences on the trunks and branches, the other affects the young shoots, which, after the bursting and peeling of the bark, die back. American blight is sometimes called "false canker."

Where the soil is stiff I certainly believe in, and practise, planting on, or nearly on, the surface, and forming wide mounds around the trees, and when this is done we find no difficulty in hoeing up to the trees, as our bushes have standards 15in to 18in in length. The mounds of soil are simply pointed with the fork during autumn or winter, and then covered with a thin coating of soil from between the rows. Under this management the hoeing must be very carefully done to bare the roots to an injurious extent. As to placing a stone slab under each tree when planting a fifty-acre fruit farm; well, perhaps Mr. Easter will enlighten "A Grower" on that point, it was not my suggestion.—H. D.

Planting Trees on the Paradise.

There is not much appearing in the *Journal* respecting fruit culture but what I read, and I remember the note from Mr. Brotherston which your correspondent "G. C." refers me to for an answer to a question I asked in my note on the above subject, on page 606, last volume. I will refer to this again presently. I am sorry I cannot go hand in hand with my friend in this matter, for the simple reason that practical experience has taught me differently. "G. C." makes some rather extraordinary statements, which seem to me to go against the common laws of Nature. When lifting some fruit trees a few years ago which were planted below the graft union, I found the roots from the scions were much stronger, and had gone farther away from the trees than those of the stock on which it was worked, and the idea struck me from their grossness that they would very soon be the primary feeders of the trees, and strong growth would result. Your correspondent says this is by no means the case. I will not argue the point, but what does Nature say? "G. C." next complains about the "great trouble" I take to ensure the swelling of the stock, and advises me to take "more trouble" by planting deeper, i.e., burying the graft union below the soil. I thought I made it quite clear in my last note why I should plant my trees lower; it was because I noticed a quantity of roots working near the surface, and some on the top of the soil. The trees are satisfactory, and lifting them every three years is the means of keeping them so. Now comes the most extraordinary statement, "No one who follows that plan will ever be troubled with rampant growth, or ever make Apple growing a commercial success." I hope my critic will not leave this subject until he has unfolded this mystery, for it certainly requires explanation, and as I am a market grower I naturally feel very anxious. "G. C." seems to favour root pruning rather than lifting (and he does it on the score of economy of labour). Well, I happen to know something of that laborious work, and will guarantee to lift and replant two trees while he is root-pruning half of one tree, if the trees are the same size and have been lifted every two or three years, and my object is accomplished while he has to wait twelve months before he can finish his. Now let us see what Mr. Brotherston says: "The question of budding low on the Paradise stock so that the latter may be all under ground is not settled by assuming that roots from the scion are beneficial or otherwise"; and farther on he hints that he prefers annual

lifting and replanting to root-pruning. And now "G. C." (I wish I could address you properly), I hope when we have finished that we shall be able to shake hands and congratulate each other that we have both learned something from it; and if you should ever come this way, call and see me, and I shall be able to show you a plantation of healthy fruitful Apple trees, and all growing with the union above the soil.—R. MORSE, Winterbourne, Bristol.

The Chrysanthemum Audit.

COMPARISONS OF PAST AND PRESENT.—IS LOVE OF THE "BIG BLOOM" DECLINING?

Mr. Molyneux is misleading when he infers that there was no audit ten years ago. In commenting on the varieties of the present day he said that they were no improvement on those of ten years ago. He now says that there was no audit in 1897. I did not say that there was, but there was one ten years ago. The present audit is compiled at the close of the 1907 "season," and it appears in December. Ten years ago the audit was for the season 1897, but it appears in the *Journal* in January, 1898. Fie, fie, Mr. Molyneux! We don't want to quibble.

I asked Mr. Molyneux to prove his assertion that the present-day varieties were no better than those of ten years ago, but he finds it an impossible task, and to get rid of it asks questions. No. 1 is, "Has there ever been a white to equal Madame Carnot, let alone one of the present day?" To this I emphatically answer, "Yes, several." This variety, owing to the sensational price it was catalogued at (24s. each), caused a big stir, and every grower tried it, and tried extensively too, for at times it would produce lovely blooms. One trade specialist could always put up a few vases of special blooms from the fact that he had an enormous number to select from, having an outlet for the general crop. Further, they were grown by a method not available to many growers. Quite fifty per cent. of the buds with most growers were failures, and with most the plants cast their foliage, and it was never considered a safe variety.

Mrs. N. Davis is much superior in every way to Madame Carnot, and has been shown by the raiser both this season and last in much better form than the last-named variety has ever been seen. These blooms were staged at the R.H.S. Hall at Vincent Square. Mrs. A. T. Miller is another far ahead of Madame Carnot, and others could be named.

No. 2 question is, "Did any of the yellows of that day, such as G. J. Warren and Phœbus equal those I named?" "Yes, again," and there are many infinitely superior to the two last-named.

No. 3. "Is there one bright coloured sort to equal the variety E. Molyneux?" This variety was remarkable for its colour, and occasionally it was shown in good form, but with most growers it was a failure; and why it found its way to the exhibition board for so long a period was because there was at least one judge who always admired its colour, even if it lacked size and form, and exhibitors got to know that it was advisable to stage it if any way possible. I could, if it was necessary, name varieties equally as distinct and much more beautiful.

No. Mr. Molyneux, your dates do not go beyond my experience. I grew Madame O. Audiguier twenty years ago, and discarded it because of its tall, ungainly habit of growth. But we are not discussing when Mr. Molyneux or myself were in our infancy as growers, and if we were possibly someone would assert that I had not got beyond that stage.

Etoile de Lyon was considered a "whopper" sixteen years ago, but it would not be thought so now. Quite recently I read of a bloom of a present-day variety being shown 16in in diameter, but I did not see the bloom. This would make Mr. M.'s bloom of Etoile de Lyon look small, his hat included. I have never asserted that size is everything, but I contend that the blooms of the present day are superior in form and colour, as well as in size.

Let me ask one question: If the present-day varieties are no improvement on those of ten years ago, why are not the old ones grown? Surely growers do not spend their money on expensive varieties year after year if nothing better is to be had? Probably the answer will be that the older varieties have lost their constitution. To this I would say, It is not so. They are superseded, and that is the simple explanation.

I would refer Mr. Molyneux to his remarks made in connection with the audit of 1902. In the *Journal* of December 18 of that year he says: "G. J. Warren has dropped lower; its place is now occupied by Mrs. Greenfield, which is perhaps the finest yellow-flowered variety in cultivation, along with Bessie Godfrey, both yellows... both unsurpassable at the present time." In this audit Phœbus had dropped entirely out of the "best fifty," and G. J. Warren was only retained by six votes; this, be it noted, is five years ago, and Mr. M. has now the temerity to state that these two varieties are equal to those of the present day! In 1903 audit, Mr. M. says that, "As was to be expected, F. S. Vallis has taken a strong lead."

From nineteen votes last year it has now secured thirty-seven, a position it richly deserves." Again, in the same column, he informs the *Journal* readers that G. J. Warren (among others) has quite fallen out of favour (i.e., has been superseded by improved varieties). And the audit, compiled by forty growers, proves that there are fifty-five varieties superior to it.

As to decorative varieties, there is no need to question as to who "lacks superior wisdom." Some of the very best varieties were omitted from the list, and I drew attention to the matter. I protest against the inference that I wish to stay the onward progress of this section; on the contrary, I am pleased to be able to lay claim to the raising of many of the most popular varieties. All the same, the decorative section, except singles, is not gaining in popularity. I admit they are frequently "written up" as being more desirable than the larger blooms; but generally it is by those who are not capable of producing the large and handsome exhibition blooms. Mr. Molyneux admires the wisdom of the gardener who was requested to grow decorative, instead of exhibition blooms; but this is not a singular instance of the big bloom having to give place to the decorative ones. Several years ago a certain gardener had 'Mum fever badly. He worked early and late, grew some fine blooms, and was rewarded with many prizes. The lady of the house then took it upon herself to "choose the tune," and asked for decorative blooms to be grown instead. Of course, the gardener was a wise man, and complied with her wishes, but he did not put in many extra hours beyond the usual ones to grow them, and the lady could not understand why the same interest was not taken in the Chrysanthemum. She "called the tune," but the music was poor.

Another case. An amateur was struck badly with the fever, and he was a successful exhibitor. His wife then thought she would like smaller flowers, and some that could be used for house-decoration and to make presents for friends. The husband consented, and I told him I was sorry, because it was certain that he would lose interest in the 'Mums. Quite true; he did, and his show is now a poor one.

Decorative blooms will never become popular at shows when equally good flowers may be seen in the markets and florists' shops. When the growth of decorative blooms take the place of exhibition ones it generally means the beginning of the end.—W. J. GODFREY, Exmouth, January 18.

Birds and Fruit Buds.

Dealing at such length as Mr. Abbey did on page 40 with bud destroying birds and the means for combating them, it might be thought by some readers that all that is worth saying has been said. The subject at this season of the year concerns so many that even a little repetition may be pardonable, if only to emphasise the need to be on the alert for the bullfinch and his bud-preying propensities. It is, of course, familiar to many that the house sparrow is, in some gardens, more particularly town gardens, as destructive among Gooseberry bushes as the bullfinch. Mr. Abbey names several other birds that are bud-eaters, though I have no memoranda in regard to the chaffinch and greenfinch. The tits certainly have given offence in some places, and in some seasons, and it is worthy of note that there is no uniformity of habit in these several birds, except the bullfinch. It has long been a puzzle why so shy a bird, and one that would not seem to feel at home in the town, should visit town gardens so regularly in the early months of the year. As Mr. Abbey tells us, there is usually not much mischief wrought before Christmas, but the advent of the new year finds them "looking round" and locating their favourite trees for their morning meal.

It is true Gooseberry trees can be quickly ruined should a pair of these "high-plumaged beauties" be left unmolested in the plantation, whether the number of bushes be few or many. We have recollections of specimens which have been so badly stripped of their buds that no alternative remained but to grub them out. Gooseberry growers in a district much frequented by birds both winter and summer are wise to be provided with wire "cages" to ward off the birds and to make the crop practically safe. Much unrest of mind can be saved if an investment in wire netting is made and erected by the aid of oak posts, as these serve both seasons so well. Unprotected trees suffer much molestation from the blackbird and thrush; indeed, often a large portion of the ripe crop goes to feed these summer vagrants which, seemingly, are always over-represented. It is true, wire netting is expensive, but in the private gardens there is much justification for the erection. The market grower could not make them profitable, covering such large areas, but in this case so much fruit is gathered green and before the birds give trouble.

Sprays with various concoctions may be made to answer the purpose very well in preventing bird raids on buds. Mr. Abbey mentions an old-fashioned, inexpensive, provision in lime, sulphur, and softsoap. We used to prepare a liquid spray from this prescription, but we have now given it over in favour of Wood's nicotine emulsion, which is so easily prepared, and

as easily applied, and not only is time thus saved, but the same protection of buds is assured. If some newly slaked lime in powder is shaken over the trees while they are damp, there is additional safety provided, but it is not absolutely necessary. A second application of the diluted nicotine may be absolutely necessary, because it is not easy to well coat outdoor trees with any kind of liquid, and unless the distribution is equal and ample, the work does not prove remunerative. Quassia extracts have been tried, and, compared with the more modern nicotine emulsion, found wanting, good as this is for destroying many of the aphid family on fruit trees in summer. The deposit from a sufficiently strong application of nicotine emulsion is very pronounced and lasting, as we found to our cost once by accident, and birds show as much aversion as do insects to this nauseous fluid. Instructions accompany the various sized iron drums. For economy one of the fine spraying syringes, or better still a knapsack-pump, should be employed for distributing the liquid evenly and in finely broken spray. Paraffin washes avail but little, as these evaporate so freely, and leave nothing distasteful behind. The nicotine emulsion should not be on any green fruit, for no matter how small this is, there is a lasting taint applied to fruit. Quassia extracts will also do this if used when fruit crops are advanced; and Cherries in particular, protected as they would seem to be by the smoothness of their skin, should not be treated with either preparation.—W. STRUGNELL.

Disqualified Chrysanthemums.

At the bulk of autumn shows classes are provided for so many blooms of specified colours, as yellow and white. In more than one instance have I during the past season, when adjudicating the cut bloom classes, been compelled to pass over blooms, fine though they were, that did not adhere to the specification contained in the class for six yellow, for example. At one show there were very fine specimens of Mrs. W. Knox, good enough to have won the premier award on their quality. In the case in point the blooms were margined distinctly with purple or dull red, the base colour being chrome yellow. My contention was the blooms should be yellow purely, without the addition of any other colour. If the prize had been awarded to the blooms in question the second prize winner with F. S. Vallis would have had a grievance, and no one knows what would have been staged next year in the same class. The disappointed exhibitor pleaded that catalogues described Mrs. W. Knox as a yellow. My reply to that argument was that a vendor's catalogue can, at the best, only be a personal opinion, and in no sense authoritative. In spite of catalogue description, the fact of the blooms carrying an added colour was fatal to an argument on that score. Another instance was Edith Smith, shown as a white, which is no doubt correct when the blooms develop from early crown buds, but in this instance they were from late formed buds, the blooms naturally having a strong flush of flesh pink suffusing the whole surface, especially the lower portion of each bloom.

I write this note to call the attention of exhibitors to a mistake, easily made perhaps, but fraught with far-reaching results in a test case. I must adhere to specimens staged in their true character. They must be white or yellow as the case may be, and not containing two distinct colours. A shade of yellow or white, as the case may be, is quite a different thing, as there are pure white, cream, and ivory shades, as well as rich, pale, and orange yellow shades. Still, all coming under the category of white and yellow. Instances are common of one variety giving, from two distinct buds (first and second crowns), blooms of diverse colouring. Algernon Davis is an example. Early buds give a rich yellow, while later formed buds provide a crimson bronze hue, which cannot by any stretch of imagination be termed yellow. Many more instances might be adduced, but sufficient has been said to give a friendly hint to exhibitors to save disappointment, that self-coloured blooms must be staged where stipulated for in such clear words as yellow or white.—E. MOLYNEUX.

Pot Washing.

Mr. J. B. Riding says the above is a waste of time. I wonder why? To get the pots cleaned thoroughly by the weather they would require placing separately on an open space. What a large space a quantity would occupy! Would it not pay better to wash them, Mr. Riding? I am of the opinion that a clean pot is as essential to a plant as a clean skin is to the human body, and I am certain the above method will not clean them sufficiently without more time and labour than washing them. As for the other method of whisking round with old sacking, I don't see how that can fetch the dirt off; it might rub it in a little. No, I do not think there is a better method than washing; and if it is a rather nasty job, we have all to put up with those in our apprentice days. At any rate, our pots will always be washed, nasty job or not, and we will risk wasting time.—D. THORNTON, Drighlington.

Societies.

R.H.S. Scientific Committee, Jan. 14th.

Present: Mr. E. A. Bowles, M.A., F.L.S. (in the chair); Dr. Farmer, Messrs. G. Nicholson, C. T. Drury, E. M. Holmes, J. Douglas, H. T. Gissow, W. Cuthbertson, G. Gordon, C. H. Hooper, W. C. Worsdell, G. Saunders, and F. J. Chittenden (hon. sec.)

WEEVILS ON GREASEBANDS.—Mr. Saunders reported that the three weevils captured on the greasebands at the last meeting belonged to a species of *Magdalinus*, but they were too much battered to make out the exact species. There appears to be no record of them attacking plants to a serious extent.

MALFORMED FLOWER OF DENDROBIUM NOBILE.—Mr. Worsdell reported that he had examined the very curious malformed flower of *Dendrobium nobile* sent from the R.H.S. Gardens to the last meeting. He found an attempt at the making of a dimerous flower, but the attempt was partially abortive. Two sepals only were developed, and two petals, one lateral, the other half of the form and colour of the labellum, and half of the form and colour of an ordinary petal. The latter petal was inserted partly in the position usually occupied by the labellum, partly in the position normally occupied by one of the other petals. The ovary had aborted.

ORNITHOGALUM LACTEUM.—Mr. E. M. Holmes showed a flowering specimen of this plant sent from the Cape. The bulb had not been planted, nor, apparently, supplied with moisture.

FASCIATED HOLLY.—Dr. Farmer showed a curiously fasciated and twisted specimen of the common Holly. The stem was fully an inch in breadth, and curled round at the apex.

COLOUR AND SCENT OF FLOWERS.—Mr. Douglas raised the question as to whether there was any relation between the colour and scent of flowers, remarking that there certainly seemed to be in the case of Carnations. The subject would apparently repay investigation.

INOCULATION OF LEGUMINOUS PLANTS.—Mr. Chittenden produced a copy of the suggested plan for carrying out a trial of the effect of inoculating Peas with cultures of nodule forming bacteria at Wisley, and explained the manner in which it was intended to estimate the result, &c.

DISEASED PLANTS.—Several specimens of diseased plants were received and dealt with.

The Horticultural Club.

"RECENT ADVANCES IN PLANT BREEDING."

On Tuesday, the 14th inst., after the usual monthly dinner of this club, Professor J. B. Farmer, M.A., F.L.S., taking the chair, Mr. E. A. Bunyard addressed the meeting on the above subject with special reference to Mendel's work, pointing out the immense advantage which the publication of the Mendelian experiments and the law of heredity which they indicated had given to selective culture of every kind, the old-fashioned guess-work with all its uncertainty and consequent loss of time and labour being now largely replaced by the knowledge that, given a conjunction of certain characters by crossing or hybridising, certain definite results were practically sure to appear in their progeny. Mr. Bunyard in his experiments had followed Mendel's example by selecting the Pea tribe as material, and found the results fairly confirmatory; he had, however, conceived the idea that the so-called dominant and recessive characters were not necessarily of a distinct nature.

Taking for instance wrinkled and round Peas, or white, pink, or blue flowers, he was of opinion that the difference was merely one of development, the wrinkled Peas being an advanced form of the round, while as regards colour it was frequently to be noted that the unopened flower buds might be of a recessive tint, and the dominant tint developing gradually as the flowers matured, passing from white through pink to bluish tint as they faded. Mr. Bunyard illustrated his remarks in a very clear manner by means of black and white cardboard discs, the black representing dominant and the white recessive characters, each of which was present in mixed offspring, either in a latent or patent form, and subsequently made their appearance in F_2 or the next generation in strict conformity with the law of chance which underlies the Mendelian law. Thus if 200 wrinkled Peas for instance be thoroughly mixed with 100 round ones in a bowl, and taken out in pairs by a blindfolded person, these pairs would come out in definite ratios of round and round, wrinkled, and wrinkled and wrinkled, precisely in the same proportions as they would reappear by the Mendelian theory and experiments. This indeed is the logical result to be expected from the segregation of the two different character potencies existing both in the pollen grains and in the ova of the plants concerned.

In the subsequent discussion, in which Prof. F. Farmer, M.M. Darbishire, Bilney, Cuthbertson, and Drury took part,

the value of Mr. Bunyard's observations was fully recognised, and many interesting points in connection with the subject brought forward, Prof. Farmer pointing out the probable extreme complexity of the units which form what are termed characters; Mr. Cuthbertson adding some interesting remarks on his own experiments, citing the singular fact that wrinkled Peas appeared to be correlated with lilac or purple flowers. Mr. Drury considered that much of the literature relating to the Mendelian principles ignored to too great extent the possible disturbing influence of the spontaneous adoption of new characters due to sudden "sporting," since any tendency in this direction would be apt to upset results entirely. Mr. Bilney referred to hybrid orchids as evidencing in the first generation intermediate characters in very diverse lines, which on Mendelian principles should not be the case, but Mr. Bunyard considered that such cases lay outside the scope of the Mendelian experiments, which dealt as far as possible with known pure forms. Professor Farmer, in conclusion, pointed out the great value of such meetings as bringing together the scientific and the practical man, each being thus able to profit by the knowledge of the other to mutual benefit. A hearty vote of thanks concluded a pleasant and instructive evening.—D.

London Dahlia Union.

ANNUAL MEETING.

The annual meeting of the above society was held in the Horticultural Club Rooms, London, on Wednesday 15th inst., at 3 p.m., Mr. John Green presiding. The secretary having read the report and balance sheet for the year ending December 31, 1907, it was unanimously approved and adopted. The thanks of the meeting was accorded to the retiring officers and committee for their services during the past year. Mr. John Green was re-elected president, and the retiring members of the committee, Messrs. Caselton, Cuthbertson, Gordon, and Mortimer, were again elected to serve. It was proposed that the following officers also be re-elected: Mr. W. Stephens, treasurer; Mr. E. F. Hawes, secretary; and Mr. R. Ballantine, auditor (carried unanimously). It was also decided to offer two gold Dean Memorial medals for pompon Dahlias in 1908, one in the trade section, and the second for amateurs. On the motion of the treasurer, Mr. W. Stephens, seconded by Mr. J. T. West, an honorarium of five guineas was voted to the secretary, Mr. E. F. Hawes, for his valuable services in connection with the Union during the past year. The president informed the meeting that he had arranged to carry out a large trial of Dahlias in all classes at Dereham during the present year, and gave the members an invitation to appoint a deputation to inspect and report upon these trials for the benefit of the Dahlia world. This was cordially accepted, and the selection was left to the committee. It was also resolved to hold the annual meeting in January instead of December as formerly, and that in future all meetings be held on Monday afternoons at 3 p.m. A vote of thanks to the chairman terminated the proceedings.

REPORT (ABRIDGED), 1907.

Though only constituted as a society in 1904, the committee are gratified to find that the interest in the Dahlia is fully maintained, and to report that the result of the year's working has been of a most satisfactory nature. The annual exhibition was again acknowledged by all who visited it to be the finest yet held under the auspices of the Union. The membership is steadily increasing; it is also satisfactory to note that at the end of the year's working the Union has a balance of assets over liabilities amounting to £11 6s. 8d., and this after carrying on a bolder propaganda for bringing the work of the Union before the notice of the Dahlia loving world. The committee are at present unable to state definitely the place and date of the exhibition for 1908.

Bolton Horticultural.

The monthly meeting of the above society was held on Tuesday evening, the 7th inst., and was fairly well attended. The subject was the cultivation of *Odontoglossums*, by Mr. Wm. Holmes, orchid grower to Mr. J. McCartney, Hey House, Tonge Moor, Bolton. *Odontoglossums* are found growing on rocks, or on the bark of trees, on branches and trunks in tropical America. The most popular varieties are found on the mountain chain of South America, some at an altitude of 5,000ft, some at 7,000ft to 9,000ft, and a few were found up to 11,000ft, where the rain season was almost continuous throughout the year, causing a dense vapour similar to fog. Some are found in forests where the most light and air found its way, others in partial shade. He strongly advised growers to take all these matters into consideration when cultivating in green-houses. A hearty vote of thanks was accorded. Mr. McCartney had a collection of *Odontoglossums* in bloom, chiefly crispum and Adrianas, for which he was awarded a certificate of merit. Mr. Wm. Russell was also awarded a certificate of merit for two excellent plants of *Primula sinensis* var. *Avalanche*.—G. C.

Scottish Horticultural.

PRESENTATION TO MR. THOMSON.

The annual business meeting of this association took place on the evening of Tuesday, the 14th inst., in 5, Great St. Andrew Square, Edinburgh, Mr. D. W. Thomson, president, in the chair. There was a very large attendance, close upon 200 members being present. A large number of new members were elected, and thirty were nominated for election at next meeting. The report of the council as to the year's work was highly satisfactory, showing that in all departments the work was carried on with vigour and success. The papers read at the monthly meetings had been of a most interesting and educative nature, and had evoked, in a most satisfactory manner, the debating powers of the members. Exhibits had not been quite so numerous as in some previous years, but had been of high class quality and interest. The Chrysanthemum show, considering the nature of the season, had been successful beyond anticipation, and the large number of visitors showed its continued popularity with the public. The total income of the show amounted to £1,126, and the expenditure to £1,086. Of this expenditure the prize money amounted to £473 15s. 6d., and music to £248. This seems to show that the Edinburgh Show at least keeps its ground. On the total of the association's funds a balance of £90 has been added to the accumulated funds, which now amount to £1,102. The printing and circulating of the annual "Transactions," with notes of the papers read, amounts to over £50, but these are highly appreciated by the members.

Mr. J. Whytock, Dalkeith Gardens, was elected president; Messrs. Kidd, Massie, and Todd were elected vice-presidents, and twelve vacancies in the council were duly filled. A most interesting feature of the meeting was an expression of appreciation of the valuable services rendered by Mr. Thomson, the retiring president, who has done so much to maintain the popularity and increase the usefulness of the association. A beautifully illuminated framed address, expressive of this appreciation, was presented to Mr. Thomson. Mr. Massie made the presentation in an eloquent, witty, and apropos speech, and great enthusiasm was shown in the matter by the members. Mr. Thomson returned thanks in a characteristic speech, in which he expressed not only his gratitude for the very unexpected but beautiful gift, but his deep regret that his term of office had come to an end. The duties had given him much pleasure and profit, and he valued the expression of their approbation more than he could find language to express. The address was accompanied by a beautifully bound copy of the names of subscribers written on vellum.

The new rules, as revised during the year, were submitted, and with a few verbal alterations were approved of. The prospects of the present season's work are highly promising.—T. M. E.

Guildford Gardeners'.

The annual general meeting of the above association was held at the Workmen's Hall, Chertsey Street, Guildford, on Tuesday, January 7, Mr. H. Tann presiding over an attendance of forty members, many others being unable to attend owing to the inclemency of the weather. The committee's report and balance sheet were read by the secretary. Mr. H. Cook moved a resolution to adopt the report, and congratulated the association upon its healthy position. Mr. J. Groves seconded, and it was carried unanimously. Mr. A. R. Upton, proprietor of the Guildford Hardy Plant Farm, having been approached, consented to become president for the ensuing year, and was unanimously elected. The officers and committee for 1908 were then elected, Mr. W. Hogden becoming chairman for the year. A hearty vote of thanks was given to Mr. Tann for his valued services as chairman during the year 1907. This was acknowledged in a few suitable words by Mr. Tann. Sums of one guinea were voted to each of the following institutions:—The Royal Gardeners' Orphan Fund, the Royal Gardeners' Benevolent Institution, and the Royal County Hospital, Guildford. The president, Mr. A. R. Upton, in a short address referred to the admirable work done by the society during the three years it has been organised, and expressed a wish that, with the increasing support of gardeners and their employers, the influence of the association would be more beneficially felt in future years in a much wider sphere. He further pointed out the brotherly co-operation of all, and good fellowship would ensue.

SOCIAL EVENING.

On Wednesday, January 8, a very pleasant social evening of the above association took place. Some 100 members and their friends sat down to a capital tea, provided by Mr. Johnson of the Workmen's Hall at the hall. After partaking of the repast, which was thoroughly enjoyed, the rest of the evening was devoted to harmony. A good programme of music, singing, recitations, and gramophone selections were given by the members and some of their friends, and heartily appreciated by all. The arrangements were ably carried out by a sub-committee,

whose efforts were mainly responsible for making the evening so enjoyable and successful. Further particulars of the association will be willingly given by the secretary.—J. GOATLEY.

Isle of Wight Horticultural.

ANNUAL MEETING.

On Saturday evening Mr. W. Tribbick, F.R.H.S., was elected to preside at the annual meeting of the Isle of Wight Horticultural Association held at the Literary Society's Hall, Newport. The annual report recorded the continued progress of the association during the past year, and the average attendance at the monthly meetings showed a marked improvement. The under gardeners in the Island had made a much better response in the prize essay competition than in the previous year. Touching reference was made to the irreparable loss the association had sustained in the death of the late chairman and treasurer, Dr. Groves, J.P. Reference was also made to the advantage of the Union of Horticultural Mutual Improvement Societies, which union the association had joined. In conclusion the report expressed thanks to the contributors of lectures and papers, and exhibitors, to the *Journal of Horticulture* and press generally for kindly publishing reports of meetings.

The hon. secretary said he was pleased to announce that Mrs. Seely had very kindly consented to accede to the wish of the association expressed at a previous meeting to become their first president. Mr. W. W. Sheath, F.R.H.S., said the association would be very pleased and honoured to have a lady president, which would be rather a unique honour, particularly one bearing a name so much esteemed in the Island, and he had much pleasure in proposing the election of Mrs. Seely as their president, which was seconded and carried by acclamation. The hon. auditor and treasurer (*pro tem.*), hon. secretary, assistant ditto, and the members of the committee were all thanked for their services during the past year, and in each instance were re-elected, whilst the names of Messrs. Tribbick, Cane, Collier and Pascoe were added to the committee. The concluding part of the meeting was particularly interesting by reason of the reading by the chairman of several admirable poems of his own composition, dealing sometimes humorously, sometimes cynically, and always ably with horticultural and association matters, and he was heartily thanked for his able presidency and for his versatile efforts in this direction.—K.

Manchester Horticulturists'.

At a recent meeting of this body Mr. Boyd delivered an admirably practical paper on Vine culture. In passing, it is interesting to note that Mr. Boyd's love for horticulture was kindled when, as a lad, he visited with other scholars the vineries of a local gentleman. He said: "The wide-spreading branches of the Vine, the clustering Grapes, and the bloom which adorned them fixed me with an irresistible desire to become a grower of Grapes which should certainly equal, if not surpass, those I saw." That he has resolutely carried his desire into effect we northerners know well. He is one of our most successful growers and exhibitors. His paper was of so valuable a character that it is to be regretted space will not admit of more than the following abridgment:—

Vine Cultivation.

SITUATION.—The bottom and sides of the border must be concreted, else the roots, in their search for food and moisture, will soon get right away down into the cold subsoil, which will affect the plants in many ways, and make it necessary to lift the roots. If the situation be low and damp make the border above ground level, and thus, as well as saving the expense of excavating, the Vines will do better by being lifted out of the damp ground and brought more to the influence of sun heat, and more under the command of the cultivator.

SOIL.—The soil best suited to the Vine is a calcareous loam, with half-inch bones, lime rubble and wood ashes added. The opinion of many growers is that Vines are gross feeders and require a large amount of manure, but to every good grower it is palpable that there is far more value in a border constituted as above than in one where heavy manures are incorporated in the soil. Top-dressing is, of course, needful, and bonemeal is one of the best; guano, whilst it is very good, requires care in its use. The top-dressing I find most advantageous is a mixture of bonemeal, nitrate of potash and sulphate of lime.

VINE FAILURES.

Many failures, it is very evident, come from lack of substance in the borders. To begin with, the loam is too light; then there is added to it too much light or gritty material; often too much soluble matter in the shape of manure. As a result, the border in a few years becomes very porous and quickly dries after being watered, and the roots failing to find sufficient moisture and food, there is, in consequence, bad colouring of the fruit—that is, if it should come to any size, for frequently shanking sets in, and other evils. Therefore,

guard against too great porousness of border by using a good stiff loam. This treatment applies to all Vines except the gross growing varieties which refuse to fruit even under ordinary good treatment. Such, it would pay better to grow by themselves, confining their roots to an inside border, and even there restricting the root room, and by using a medium loam with no moisture of any kind—treatment that keeps the wood from getting too sappy so that it tends to get more ripe in the autumn with a corresponding increase of fruit. Varieties which respond to restricted root treatment and poor diet are Trebbiano, Barbarossa, Gros Maroc; even Gros Colman will be found to colour better if similarly treated.

RIPENING THE CANES.—On thorough ripening of the canes the future crop depends to a large extent. Some growers advocate having the borders very dry at the time, for which they assign the following reasons: (1) The wood is better ripened; (2) the Vines are better rested; but I believe in having the soil at this time at what one might call "a growing medium." There is then less chance of harming the thread-like roots, which are very plentiful at this season. The practice of some, to facilitate ripening, of cutting back the bunch-bearing laterals to the third or fourth joint shortly after the Grapes are out must prove injurious to the Vines—the removal of healthy leaves seriously affecting root action and being hurtful to the Vine's future. While the leaves remain healthy they are performing their natural function. If the foliage is crowded, by all means thin out, but the sub-laterals only; leave the primary (bunch-bearing) laterals intact.

PRUNING AND WATERING.

Between the method of pruning back to the second, third, or fourth bud, leaving whichever is the strongest and rubbing off the others, and the method of pruning to the first bud nearest the main stem (and I have tried both), I have never, so far as the fruit is concerned, seen anything to choose. Myself, I therefore adopt the plan of pruning as close as possible to the main stem, always making sure, of course, that a good bud is left. When three or four buds are left to break, almost invariably the top one will manifest the greatest vigour, and to allow the others to break is simply a waste of energy. The spurs on the main stem are very frequently left too close together; the shoots on either side should be from 16in to 22in apart, and in gross growing varieties 24in. This permits proper leaf development, and as the leaf is to the plant exactly what our lungs are to us, it is foolishness to expect vigorous plants and fruit without good leaves.

WATERING.—More depends on proper watering than I can well express in words. While I have known it to be overdone, there is little fear of that if the borders are properly drained. Vines in such borders can scarcely have too much water. Supply manure water during the growing season, and take care that the Vines are never, at any time, allowed to become dust dry.

TYING DOWN.—In this, as in all else, there is a right time. If the operation is performed with care and by skilled hands, and neither too early or too late, there is little fear of snapping at the base. The morning I think the best time, when the shoots are full of sap, and they should be taken down a little each day. Done later in the day they are, as a result of the strong heat of the sun drying them, more pliable, but sometimes one has the mortification of finding that the return of the sap to the sun-dried stem has led to the shoots snapping.

SETTING.—Beyond keeping the atmosphere a little drier than usual, and giving the stems an occasional tap or shake to scatter a little of the pollen, I do nothing except with such shy setters as Muscat of Alexandria and Mrs. Pince, which are gone over with a camel's-hair brush, using, if possible, pollen from a different variety.

THINNING.—By practice only one becomes an expert thinner of the berries. In regard to the bunches, never allow to flower those which are to be removed; allowing them to develop is simply wasted energy.

FORCING.—To have fruit in May start the Vines in December; if fruit is desired earlier than this, it is best to rely on pot culture. Black Hamburg requires a little more than five months to ripen its fruit. The late Vines require over six months to ripen. To start such varieties as Muscat of Alexandria, Gros Colman, Lady Downe's, &c., the first or second week in March is late enough. Vines started then will ripen their fruits from the first to the fourth week of September, according to variety; ripened at that time they will be found to keep through the winter better than those ripened later on; and the wood will have a better chance of ripening. In regard to temperature, I start my Vines at 58deg at night, and gradually raise it to between 65deg and 70deg by the time they come into flower. The ventilation must be carefully attended to, and draughts guarded against, as they are frequently the cause of shanking. Admit a little air early in the mornings by the top ventilators, but close early in the afternoon to get all the advantage of the sun heat. My practice is never to allow front air until the Grapes commence colouring, by which

time I try to dispense with fire heat entirely. As a drier atmosphere is required at this juncture, damping down should be discontinued. All sudden alterations of temperature are disastrous, and must, of course, be avoided. While a moist atmosphere is essential during the growing season, it must not be stagnant, for stagnant moist and stagnant dry atmospheres are alike hurtful.

SCRAPING VINES.—PESTS.

Scraping Vines I believe to be a mistake in principle. When there has been a bad attack of red spider or mealy bug there may be a necessity for it in order to take away with the loose bark all of the insects that is possible, but all those who have been visited by these pests know that even then there are always plenty left to carry the breed forward to another year. If they are to be got rid of at all it can only be done by insecticides. Removing the loose bark with the hands will suffice where insects have not been troublesome; if they have been in evidence the use of a blunt knife in a gentle manner is quite enough. Every part of the house must then be scrubbed with hot soapy water, using to each gallon a wineglassful of paraffin; the Vines must be washed in the same manner. Many kinds of insects prey upon the Vine, and if left unmolested work dreadful havoc, but in the forefront must be placed red spider, bug, and thrip. Although the introduction of growing plants often brings these pests to the vinery, dryness of the atmosphere and at the roots is the chief cause. To prevent we must water freely, keep the atmosphere charged with sufficient moisture, and at the same time endeavour to keep growing plants outside the vineries. If, in spite of all, insects gain a footing, carefully sponge the leaves with soap and sulphur, which will be found effectual if carefully done. Much as mealy bug refuses to be expelled, it is not impossible to eradicate it, for I know a vinery which, though badly infested, was cleared in one season by the use of paraffin oil.

DISEASES.—Diseases of many kinds—shanking, rusting, &c.—attack the Vines. Too little or too much water, improper ventilation, draughts, sudden changes of temperature, bad borders, overcropping, any of which, or a combination, will induce disease. The cure is simple and lies in one's own hands. Mildew is one of the worst and most inexplicable of diseases, and is very difficult to get rid of. The cause is hard to find. A stagnant moisture, if not the immediate cause, is certainly favourable to the production and development. A most effective cure is flowers of sulphur, with which every leaf should be dusted in the morning; where badly infested every part of the Vine should be gone over, bunches included. The thin skinned varieties, especially the whites, will be disfigured, but there is no other ill effect, and all that is necessary for cleansing is to hold the fruit below the water tap. After pruning take off the loose bark, give the stems a good dressing of Gishurst compound with sulphur added, thoroughly wash every part of the house and limewash the walls. Then take away as much surface soil as possible, top-dressing with fresh loam, &c. Sprinkle over with sulphate of iron (2½oz to the square yard), and wash in as soon as applied. Mildew with this treatment should be stamped out in two seasons at most.

In concluding he said, "My aim in all my dealings with Vines is to have fruit beautiful to look upon, perfect in size and finish, and with that flavour which must be tasted—not talked about." It is unfortunate Mr. Boyd was compelled to leave early for his train, for it was made very evident to everyone he had a mine of information at his command.—W. H. W.

Birkenhead (Cheshire) Horticultural.

VEGETABLES FOR EXHIBITION.

A well-attended meeting was held on January 16, in the Y.M.C.A. Mr. B. Ashton, of Lathom, was the lecturer, the subject being "Vegetables for Exhibition." The king of vegetables he says is the Potato, and some valuable hints were noted in regard to the growth of this tuber. He recommended burnt refuse, leaf soil, and well decayed manure to be scattered in the drills when the sets are being planted. For culinary Peas a trench 2ft deep should be made, into which well-rotted manure is freely placed. Carter's Quite Content Pea he mentioned as the best one for exhibitors, but for general purposes Dickson's Queen of Marrowfats is unequalled. The culture of Onions was detailed, and Ailes Craig headed the list of varieties. Mr. Ashton advises sowing the seeds in December in a temperature of 60deg. Nitrate of soda and sulphate of ammonia are desirable stimulants. A wineglassful of petroleum added to two gallons of water and lightly sprayed over the bed will keep the dreaded Onion fly at bay. Soot is not so well thought of as the paraffin decoction. The lecturer is very successful with Parsley, and his methods, if followed, should result in this subject being grown satisfactorily, which is rare in this district. In the subsequent discussion Mr. Ashton must have been delighted with the number of questions put to him, which proved that those who were present sought information eagerly. Mr. Ashton was very warmly thanked for his very instructive paper, which was, as a member justly said, "brimful of information."—R. G. J.

Market Gardening Notes.

LATE MARKET GRAPES—CANVASSING.

This should be done without delay, having first gone over every bunch and taken out the faulty berries. These Grapes to hang for the end of March up to the first week of April on the Vine require special handling. Tons of such fruit are now in prime condition at Finchley, Broxbourne, and Waltham Cross. The essential point for hanging is a well-grown bunch. A clean dry surface in the house with sufficient moisture below to maintain plump berries is necessary. Alicante this year has finished up well for this purpose, and as I write the trade is quiet, hence there is a restriction in the usual market cutting. Alicantes for keeping require little fire heat, so long as the damp is kept out.

Gros Colman.—More of these are being kept than is usual;

Outdoor Peach Trees.

During October a discussion arose in the *Journal of Horticulture* upon the merits of Peaches from trees in the open, and whether the cultivation of Peach trees on walls in the open air was worth the trouble in Norfolk, and in a similar latitude. Bad weather, bad soil, and insufficient labour to attend to the necessary details of cultivation, were, it was stated, handicaps against which no gardener, of whatever degree of energy or ability, could successfully battle. Contrary opinions were, of course, also, and with equal vehemence, asserted. As to the success of open-air Peaches, we know of several highly successful instances even on the East coast of Scotland, certainly as far north as Edinburgh, in our own experience.

There may be some difficulty in growing satisfactory crops of Peaches outside in Norfolk, no doubt, and in some other counties; but in the southern districts it is only a case of

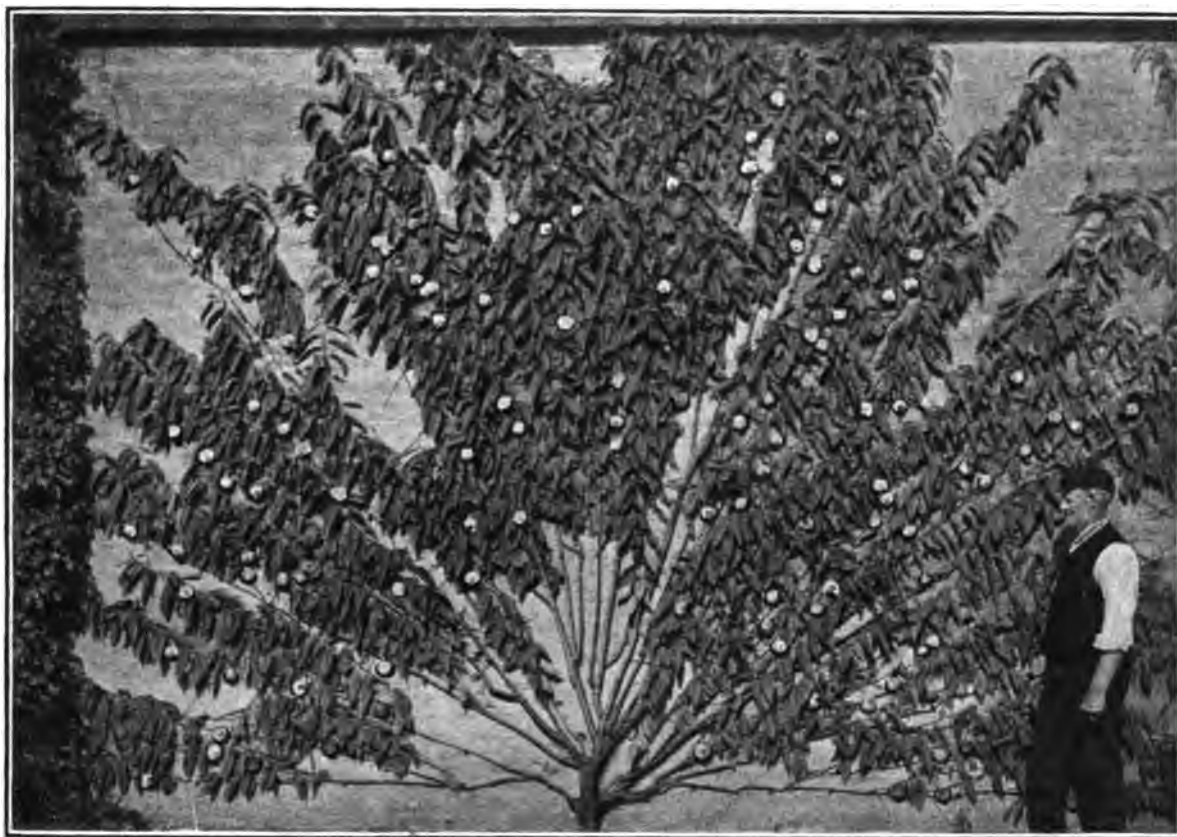


Photo. by]

Fan-trained Outdoor Peach Tree.

[Mr. W. H. Divers.

in some instances this is due to want of colour. These paler Grapes do not meet with a ready sale at this time. While these can never be black, they will improve by hanging with more fire heat than for Alicante. At the end of March, sometimes earlier, in order to clear, large numbers of bunches are cut for bottling to hang in the vineries under the shade. A thought will naturally arise as to the health condition of Vines under this treatment. In individual cases Vines will be weaker in breaking, but these quickly strengthen for the autumn. I have inspected this season large blocks of Gros Colman which have been "hung late" for a number of years, which are, if anything, better in crop and stronger in wood than last year. In these conditions a very liberal treatment is given up to the covering in. As is well known, the vineries must be cleared of everything while the late crop is hanging for keeping.

Just a word as to price. Such late kept Grapes must make, say, 6d. per lb more than if cut to-day, to pay for the extra labour. Lastly (and this should not be lost sight of by the grower) were he to rush his crop in irrespective of the price and sale, where would he be? This is a strong point in favour of keeping, when it can be done without excessive waste.—STEPHEN CASTLE.

proper planting and the necessary attention during the period of growth to ensure crops of fine fruit almost every season. In five years we did not miss a crop in a Surrey garden, and it is useless for gardeners to declare the impossibility of outdoor Peach growing in England at the present day. Fine crops are grown year by year where protection from spring frosts is afforded, and the necessary routine of culture is properly carried out.

Too often there are causes (removable) which militate against success in open-air Peach culture, such as sheer neglect of insect pests until they have wrought irretrievable mischief. Want of water at the roots during a dry spell in September or October after the fruit is gathered is very bad. Some persons are apt to forget all about their trees after picking the fruit until they see signs of life the following year. How can a Peach tree perfect its buds in the autumn for next year's fruit crop if it is denied the necessary conditions of root moisture, and a neglect of seasonable pruning of its branches?

The following notes (accompanying his photograph) from Mr. Divers will be of interest:—

As some of your correspondents seem to doubt the possibility of growing Peaches outside at the present day, I send you a

photograph of a tree of Sea Eagle Peach which I took on October 4 last. The tree is growing on a south wall, and measures 15ft in length by 12ft in height, and carried at that date 136 large fruits. These were gathered a few days later, and were of excellent quality. A large number had been previously thinned off, as I am no advocate of excessive cropping. The tree was planted in 1898, and has had no special attention beyond many others which we grow here of various kinds, and which bear quite as well as this one. The soil here is a strong clay of unknown depth, but it has been improved by culture immediately where the trees are growing. We are more than 100 miles north of London, and get frost and cold weather quite as severe as in any other part of the Midland districts. The man shown in the picture is Mr. Jas. Stubley, who has had charge of the fruit trees here upwards of thirty years. He will be well known to many of your readers who have lived here in past years.—W. H. DIVERS, Belvoir Castle Gardens, Grantham.

Records of the Weather.

Rainfall in Kildare.

The total rainfall for 1907 at Straffan House, Kildare (gardener, Mr. Frederick Bedford), was 31.4in. The total number of days on which rain fell was 212. June and October were the wettest months, the latter yielding 5.33 in. The total is only 5.35in more than in 1906.

Rainfall at Woolton, Lancs.

The total rainfall for 1907 at Camp Hill Gardens, Wootton (gardener, Mr. Joseph Stoney), was 32.22in. Rain fell on 213 days. Rainfall: 1906, 29.90in; 1905, 25.40in; 1904, 28.35in; 1903, 39.25in. The eight hottest days during the year were May 12, 74deg; June 9, 73deg; July 16, 75deg; July 17, 75deg; July 18, 75deg; July 19, 75deg; July 20, 75deg; July 14, 72deg. Eight coldest nights: January 6, 8deg of frost; January 21, 10deg; January 22, 8deg; January 23, 14deg; January 24, 10deg; February 1, 11deg; February 2, 10deg; February 22, 10deg. It will be observed the heaviest rainfall was on Sunday, the 9th June, when the rain gauge registered 1.40in, which was the heaviest fall in twenty-four hours since Tuesday, the 27th October, 1903, when it registered on that day 1.42in.

Summary for 1907 from Belvoir Castle.

The prevailing direction of the wind was S.W.; total 79 days. The total rainfall was 25.83in; this fell on 227 days, and is 0.36in above the average for the year; the greatest daily fall was 1.05in on May 14. Barometer (corrected and reduced): highest reading, 30.972in on January 23 at 9 a.m.; lowest reading, 28.666in on December 13 at 9 p.m.; mean of 9 a.m. and 9 p.m. readings, 29.948in. Thermometers:—highest in the shade 80deg on May 12; lowest on the screen, 10deg on January 25; mean of daily maxima, 54.46deg; mean of daily minima, 39.67deg; mean temperature of the year, 47.06deg, which is 0.95deg below the average; lowest on the grass 9deg on January 25; highest in sun, 131deg on May 11; mean temperature of the earth at 3ft, 48.23deg, which is 0.32deg below the average. Total sunshine 1515 hours 10 minutes, which is 3 hours 15 minutes below the average; there were 54 sunless days.—W. H. DIVERS.

Notes from Wroxham, Norfolk.

From the beginning of the year up till Friday last, the weather has been very variable, stormy and frosty in turn. On Thursday night, the 3rd, the Broad, which covers an area of some 300 acres, was completely frozen over to the depth of an inch and a half, notwithstanding that a fierce north-east wind blew during the night, and caused wavelets of no inconsiderable size upon it. Considering that there were only 16deg of frost this was phenomenal. The two following nights registered 17deg and 18deg respectively, and then a sudden thaw supervened. Before the end of the week, however, the earth was again fast in the grip of the ice king, when we had, on Saturday night and Sunday night, 16deg and 17deg. A change, which ended twenty-four hours afterwards in a thaw, was welcomed by all who have their interest in outdoor work. Friday and Saturday were ideal spring days, so mild and sunny that a great impetus has been given to early border subjects, such as Narcissi. Their green and welcome tips are peering through the soil; there was no snow. In comparatively recent times severe frosts were in 1878-9-80-81. In 1879-80 there was a period of seventeen or eighteen weeks. The last frost of a protracted nature was in 1894-5, when there were nearly ten weeks of it, from the end of December till the second week of February. The hardest frost, however, for the last eighty years was on the 6th January, 1897.—D. C.

Young Gardeners' Domain.

* * The prize is awarded to Mr. F. Bradbrook for his letter hereunder. Honourable mention is accorded to "A. E.," Henley.

Specimen Chrysanthemums.

To grow large specimen Chrysanthemums there are two methods which the grower may choose. Old plants shaken out may be potted up into small pots, or cuttings (which is preferable) may be taken; but in either case it is most important that an early start be made. The first week in November is soon enough to insert cuttings, placing three or four round the side of a 60-size pot, in very sandy soil. When rooted they must then be placed in a cool house, well up to the light. Pot them off singly into small 60's, using light rich soil; do not pot too firm at this stage. Continue to push them along, well up to the light. Pinch out the tops when they are about 6in high, and secure about four breaks, rubbing the lower ones out. Attend to potting as soon as the roots are showing well round the sides of the pot, taking care not to give the plants a check for lack of more root room. Make up a compost of good fibrous loam, leaf mould, sand, and a sprinkling of soot and bonemeal; mix well together two or three weeks before using it. Four-inch pots will be large enough for a shift, potting a bit firmer this time. Keep them a bit close for a few days until they have started rooting; then admit as much air as possible. Continue to stop the growths if they do not break naturally, at every 8in or 10in till the end of July, and keep these well staked out, so as to admit plenty of light and air into the middle of the plants. Pot them on into 32's when well rooted, using a compost similar to the last potting, adding rather more loam and pot firmer. As soon as the weather is such that it can be trusted, place the plants outdoors so as to keep them sturdy. Choose a position for the summer quarters where they will get plenty of sun, as it is most important that the growths get thoroughly ripened on such large plants. For the final potting use 10in pots, which must be well drained to carry off the large amount of water which the plants will require. Use a rich loamy compost and pot firmly. Water with care till the roots are running freely in the new soil; feed with liquid manures during the summer months. Frequent top-dressings with Clay's fertiliser and other approved manures are very beneficial during showery weather. Keep the growths well staked and regulated, and disbud down to one bud to a growth. In this way one may have plants 5ft high and as far through, carrying forty and fifty blooms, each 3in across.—F. BRADBROOK, Manor House, Little Berkhamsted.

Hippeastrums (Amaryllis).

The cultivation of this handsome bulbous plant has made great strides of late years, and it is now deservedly one of the most popular subjects we have for the decoration of the conservatory and dwelling house during the winter months. For use in a cut state in large vases, after the Chrysanthemums have gone out of season, they are unsurpassed. With a good collection of bulbs a supply of flowers may easily be kept up from the beginning of December until late in the spring. For the earliest batch choose some of the best and well ripened bulbs, and those that were reported the previous year, as they will only require a liberal top-dressing, using good rich loam with a good sprinkling of bonemeal. Scrape off the old soil down to the topmost roots and immerse the pots in water to ensure the ball of soil being soaked through, before applying the top-dressing. Place them in a good forcing heat of about 60deg to 65deg, for preference where there is bottom heat, as this will the better encourage root action. Keep the surface and the space between the pots damped, but they will not require watering until the flower spikes appear. In about a month or five weeks the flowers should be opening, when they may be removed to a cooler structure.

Introduce further batches into heat according to the demand for flowers. For later batches, any bulbs that need it should be repotted, using a compost consisting of three parts good rich loam, one part leaf mould, and a good sprinkling of bonemeal and silver sand; and during the operation of potting take care not to bunch the roots in the centre of the pot, but keep them well to the sides and work the soil in amongst them. It is a good plan to repot and top-dress the bulbs alternate years. As soon as the flower spikes are removed keep the plants in a growing temperature, and feed liberally with liquid manure and soot water to encourage leaf and bulb growth, which is necessary for the formation of a good spike for the following season. When the foliage begins to die away gradually withhold water until the pots can be stowed away on their sides under stages, or any other dry place. For the production of extra good spikes make up a hotbed mostly of leaves, in a frame, and when the flowering period is over plunge the pots to the rim, apply plenty of liquid manure and use the syringe freely, closing early in the afternoon to conserve sun-

heat. They will require shade during the hottest part of the day. The extra time and labour will be amply repaid by spikes bearing from five to seven flowers each.—A. E., Henley.

Sweet Peas.

In growing Sweet Peas, whether for exhibition or only for the adornment of the garden, the deepest cultivation of the soil is necessary. Success or failure depends largely upon it. A great mistake is made by not working the soil deep enough, for there is nothing more opposed to their ultimate success than trying to grow them on a poor shallow soil. In preparing the soil it is essential to get it turned as early as possible, as frost and wind are of great benefit. An excellent plan is to sow the seeds in pots and place them in a cold frame during January or February, five seeds in a 6in pot, or one in a thumb pot, using a good light compost. Do not treat the plants as though they were tender, otherwise disastrous results may follow. Plant out in April. For outdoor sowing the middle of March is generally the time, but both these operations must be entirely governed by the weather. If they are sown in drills always secure a good flat bottom, and the best way to perform the operation is with the spade, taking out the trench about 16in wide and 4in deep, and place the seeds in—not throw them in, as that involves a tremendous waste of seeds, and in the event of thinning the plants will oftentimes be found with insufficient strength to stand it. Place the seeds about 4in apart, and thin as necessary until each individual plant has a good foot of space to grow in. Ultimately rake in the trench, covering the seeds about 2in deep, thus leaving a slight depression in the trench. When the plants are just peeping through, birds and slugs will be predatory, and an occasional sprinkling of soot will be found a very effectual remedy. Staking is an operation that, generally speaking, does not get the attention it needs. For this purpose nothing is better than the common Pea boughs about 8ft high, placed around them when they have made about 4in of growth. When the plants are well in bud, feeding may commence if necessary; and always apply it when the soil is moderately moist, because when applied when the soil is dry, at least half its virtues are lost to the plant, and eventually mulch with manure. In the event of very scorching sun some of the varieties will need shading. For this purpose a piece of tiffany stretched across is very appropriate. If the seed pods are kept constantly picked off the plants will last a considerable length of time in flower. I should advocate to plant the best of your varieties in clumps. Space will not allow the naming of many, but among the best are Helen Lewis, Sutton's Queen, Helen Pierce, King Edward VII., Miss Willmott, Gladys Unwin, Henry Eckford, Dorothy Eckford, Black Knight, Flora Norton, Lady Grisel Hamilton, and Queen Alexandra.—H. STEVENS, Guildford.

Culinary Herbs.

One sometimes feels a difficulty at what to contribute to the "Domain," as so many able letters appear, and one does not wish to reiterate upon a subject which has already received justice from another. I may safely give a contribution on herbs. These are generally grown in some out-of-the-way corner, and are pretty much left to themselves. Herbs are not in daily demand, but they could mostly all be cultivated in a comparatively small portion of a border, and could always be in stock, for they may be sought for at any time. In preparing a new piece of ground for herbs, select a part of a border, and it requires deep tillage with a good quantity of farmyard manure incorporated, for many of them remain a number of years in their position. But after a period of four or five years the soil becomes exhausted, therefore the plants benefit from being lifted and split up, and returned to the soil after it has been improved by digging in manure, or preferably a new site will be best. Those most often in request are Mint, Sage, Thyme, Balm, Tarragon, Fennel, Rosemary, Chervil, Chives, Winter Savory. The shrubby kinds: Thyme, Sage, Lavender, and Winter Savory, can be easily increased by cuttings of young shoots in June, and put into a shady border or cool frame, with plenty of sharp sand at their base. Of the herbaceous, such as Mint, Balm, Tarragon, and Fennel, these can be increased by division of the stocks in spring. Of annual sorts there is Chervil, Anise, Sweet Basil, Sweet Marjoram, and Summer Savory. Whether of annual, biennial, or perennial duration the seed can all be sown (of those obtainable) in April. Make a fine mould on the surface of the soil, draw out shallow drills and cover lightly, supplying the seed bed with water to assist germination if dry weather prevails. Label each sort correctly to avert future confusion. Thin out the plants as growth demands space, those herbs in particular which will be permanent for a season or two.

Parsley.—There is always an unfailing demand for Parsley. In some gardens this invaluable crop is often a failure or a good bed of it will suddenly turn yellow and eventually die without any apparent cause. Make several sowings from now to May for summer and autumn use. Select a sheltered position and a rich soil. You will find that a piece of ground re-

cently dug and a good coating of manure put in at a depth of 6in is satisfactory. Parsley has long tap roots, and these must be well down amongst the manure to withstand the sudden draughts, and ground which cracks in dry weather is certain to destroy the crop. Sow in shallow drills a foot apart. The seed is slow to germinate, so the bed being kept moist will hasten it. It is always best to thin out to 6in, better foliage is the result, and the plants are not so liable to turn yellow if otherwise crowded together.—A. V. MAIN.

A Novel Practice.

During the latter end of October I was called from the houses to assist the pleasure ground men in planting out some beds in front of the Hall. I fully expected I should have to assist in planting out Wallflowers, Myosotis, and other spring-flowering plants, but to my surprise I found there were bundles of evergreens placed at each bed. They consisted of large branches of Laurel, Box, Yew, and Holly, which we cut into smaller pieces about 2ft in length, and these we stuck in the beds, commencing in the centre of the bed and working to the sides, so that in this way the backs of the branches were not exposed to view. When finished the beds were about 2ft high, being higher in the centre than the sides. The evergreens were not mixed, but each bed was planted with one evergreen. Among the beds were two large vases and four smaller ones, into which were stuck branches of Box, a little larger than those placed in the beds, and when finished gave the appearance of a young Box tree growing in each vase. Around the edge of the larger beds was placed small lumps of coal, pieces of white granite, and pieces of broken brick, all of an even size. They were arranged in such a way as to form a pattern. I might say that the whole when finished had a very pleasing effect; but in my opinion it would be much better to grow plants for the purpose, as I am sure many of the shrubs must have been spoilt with the quantity of stuff which was out from them. I do not know if this idea is much in vogue, but I have never seen or heard of it before.—IMPROVER.

Nature's Methods of Pollination.

If the egg cells of a flower are fertilised by pollen from the same flower, it is said to be self-fertilised; if by pollen from another flower, cross-fertilised. In the latter case, healthier and more vigorous seeds are produced, and undoubtedly this is the reason why Nature has called into existence various devices to bring about cross-pollination, the process which precedes fertilisation. The transfer of pollen from the anthers of one flower to the stigma of another may be effected by water, wind, or animals, the latter doing the work unconsciously. In certain aquatic plants self-pollination is entirely prevented by a method which is adopted by many other forms, viz., the carpels and stamens are developed upon different flowers which grow on separate plants; example, Vallisneria. In this, the female flower is at the end of a spiral stalk which brings it to the surface. Meanwhile the ripe male flowers have separated themselves from the stalks and float about on the water till they come in contact with the female flowers. After the egg cells are fertilised, the spiral stalk coils up again, thus allowing the seeds to mature in a safe position under the water.

The cone bearers (coniferæ) rely upon the wind for the discharge of this important work of pollination; example, Pinus sylvestris (Scotch Pine). Self-pollination is here prevented by the flowers being of two kinds, male and female, which are borne on the same tree. In such cases large quantities of pollen are produced so as to ensure that some may be carried to the ovules. In plants of this kind there are no stigmas, but the ovule-bearing cones exude a sticky fluid, and by this the pollen grains are caught. To each of these grains are attached two small bladders, which enable the wind to carry them more easily. It is stated that the flowers of a common Australian shrub (Dryandra) may be cross-pollinated by the agency of kangaroos.

Abroad, birds (the humming bird of America and the sun bird of Africa) are the agents whereby pollen from some flowers is distributed. Insects are enticed to flowers by means of colour and odour, and they go in search of pollen, nectar, or sweet sap. The Foxgloves (Digitalis) may be cited as an instance in which the bee, when it creeps into a young flower, gets its back dusted with pollen which is likely to be received by the stigma of the next older flower it may chance to visit. In this instance the stamens come to maturity before the stigma in the same flower, so it is necessary to have means whereby pollen from the anther in a young flower can be conveyed to the stigma which is ripe and ready to receive it. The Aconitum is another instance in which the pollen is ripe before the stigma in the same flower. The opposite takes place in some cases, and it often happens that the anthers and stigma are so placed in relation to one another that self-pollination is impossible, and some flowers are self-sterile. The pollen of inconspicuous flowers of some plants which grow in damp places is often carried along from one blossom to another by the humble snail or slug, so we see that Nature has many agents to help her in the work of reproduction.—W. B. L. Kew.



Hardy Fruit Garden.

WINTER WASHING.—Various washes are being put upon the market for the purpose of the cleansing of fruit trees. Some may prove efficient, certainly many of them are offered at a high figure. Growers will be well advised to act carefully before expending large sums of money upon preparations which are of little value, or of no greater efficacy than washes which may be prepared cheaply at home. It is very easy to spend a lot of money upon washes where the plantations are extensive, much less difficult than to find a really satisfactory wash. We shall be making a number of trials, and another season hope to give readers the benefit of our experience. In the meantime we shall most probably rely chiefly upon salt and lime, or upon a caustic soda combined with copper sulphate mixture.

PLANTING.—Now that the weather has once more broken up we may hope to be able to clear up arrears of planting. It may be wise in some districts, especially where the soil is cold and heavy, to delay until well into next month, to allow the temperature of the soil to be somewhat higher than now after the recent severe frosts. In any case, if preparations have still to be made, it will be possible to push on with these whenever the soil is workable.

PEACHES.—It will be necessary to have the pruning and training of these completed without delay. If scale is present it will be needful to cleanse the trees before fastening them to the wall or trellis. In pruning endeavour to retain a sufficiency of young well ripened shoots, as these will bear the season's fruit. Young trees recently planted should have the young shoots shortened about a third of their length to induce them to break freely, and provide a number of young growths for the proper formation of the trees.

STRAWBERRIES.—It is possible that owing to adverse weather a number of plantations may still require attention. The ground ought to be lightly forked between the rows, interfering with the roots as little as possible. Give old beds a dressing of manure previous to digging, this will help to carry them more or less successfully through another season or two. Beds for young plants for spring planting may be prepared. Deep digging and moderate application of yard manure, with artificials as needed, will be found to suit Strawberries better than great quantities of rich manure.

STANDARDS.—We have recently found it necessary to thin the heads of a number of these which have not been shortened back for three years. We do not believe in the practice of continually cutting such trees back even when young, but nearly everyone will find that sooner or later the growths will need thinning to some extent.—J. W., Evesham.

The Plant Houses.

NEPENTHES.—The present is a suitable time to cut back leggy plants, and for generally trimming the remainder into shape. As soon as they make new growth any potting or re-basking necessary should be attended to. Teak baskets are preferable to pots. It will be better to remove the soil from plants looking at all unhealthy, and carefully wash the roots. A mixture of fibrous peat (from which the fine soil has been removed) and sphagnum moss, with which is incorporated some broken charcoal, forms a suitable compost. When pruning back the growths, plenty of material will be available for cuttings. These will root readily if given the following treatment. Invert clean pots, 2½ in or 3 in in diameter, on sphagnum moss in a close propagating frame with bottom heat. If the hole in the bottom of the pot is not large enough to admit of the base of the cutting being readily passed through, enlarge it sufficiently. In this way they will be suspended over a hot moist bottom. Maintain plenty of moisture in the frame by syringing several times daily. Do not attempt to draw the cuttings back through the hole, but break the pots when they are rooted and ready for potting.

STREPTOCARPUS.—A number of seedlings should be raised annually, as the best results are obtained from plants six months to two years old. Seeds sown in heat the end of January or beginning of February will flower the following autumn, continuing through the winter if assisted with a little weak manure water. Remove some of the old soil from the one-year old plants and repot them. A warm house or frame, with a moist atmosphere, will now be the best place for the plants. Use a compost of equal parts fibrous loam, leaf mould, peat, adding plenty of coarse sand. Plants with especially high coloured or large flowers can be increased by leaves. Cut

through the main ribs on the under side, and laid on the fibre in a propagating frame, they will form roots, several plants being produced from each leaf.

CUTTINGS.—All the available space in the propagating frames can be filled with cuttings of choice stove and greenhouse plants. These include several Acalyphas, valued for their highly coloured foliage, notably *A. Hamiltonianum*, *A. Macraeana*, *A. macrophylla*, *A. musaica*, and *A. Wilkesiana marginata*; several species of *Eranthemiums* (*E. Moorei* and *E. reticulatum*); also *Graptophyllum hortense*, all with variegated foliage; the popular varieties of *Coleus* with highly coloured foliage. When grown as specimens the cuttings should be inserted singly in small pots. For the remainder, place four cuttings round the sides of 4 in pots. Near the base of *Pandanus* plenty of young growths are usually available for cuttings. Many of them can often be removed with roots attached; the best treatment for these is to pot them up singly in small pots, and place them on a shelf in the propagating house. Continue to put in *Chrysanthemum* cuttings of sorts still required as they become available. Many of those inserted in December are rooted and ready for removal from the close frame to one where a little air can be given them.

CYCLAMENS.—The young plants raised from seeds sown last autumn are ready for potting off singly into small pots. An alternative method is to plant them out in boxes which are at least 4 in in depth. Set out 3 in apart in light soil, consisting of equal parts fibrous loam, and leaf mould, adding sufficient sand to make it thoroughly porous. In boxes they seem to grow away more rapidly, and are not so liable to receive a check from the soil becoming too dry as in small pots. Keep the young plants near the roof glass in a warm house, syringing them several times daily.—A. O., Kew, Surrey.

Fruit Culture under Glass.

POT FIGS.—If these trees were started as advised some weeks ago the buds will now be swelling nicely, and the fruits will be showing freely at the point of the shoots, and providing a slight bottom heat can be afforded a little increase in the day temperature can now be given, with a liberal rise by sun heat. At no time from start to finish should the trees be allowed to get dry at the roots, and where pot trees are syringed too freely in dull weather, the soil on the surface gets soured. This should be avoided, as though syringing is necessary, a light spraying will suffice. I have referred to bottom heat, and a little later on it may be necessary to add a fresh material, but do not exceed 70deg—a steady temperature, not too high, will prevent a thin growth, and ventilate freely on all favourable occasions. The trees will soon require disbudding. Here all badly placed growths or useless shoots should be rubbed off, and the fruiting shoots, except the terminals, be stopped at 3 in or 4 in long. It is a mistake to allow pot Figs too much license, even the terminals should not be allowed much freedom, as ungainly trees are not the best bearers. St. John's and Pingo de Mol, two of the earliest growers, are inclined to make a straggling growth, and these require close stopping in their early stages of growth to get a compact sturdy habit.

PROPAGATING FIGS.—In many gardens it is necessary to keep young stock, as there is not room for large old trees. Now is a good time to prepare new stock, and as these trees grow so quickly it is surprising how soon they attain to fruiting size. For very early forcing in a low pit I found three-year-old trees give grand crops, but two-year-old trees give a good return. For latest supplies, the black varieties, such as Negro Largo, Dr. Hogg's Black, and Bourjassotte Grise, are of splendid quality. These Figs can be propagated from eyes and ripened shoots. I prefer the last named, as time is saved. Well-ripened shoots of last year's growth should be selected, cut 4 in to 6 in long, the lower bud or eyes removed, retaining one or two good ones at the upper portion, and the shoot should then be inserted in small pots or several round the sides of a larger pot. If desired, the shoots may be shorter, with only one eye, and these placed in sandy compost. Whichever plan is adopted, only one strong growth is retained to form the tree. The pots should be plunged in a steady bottom heat of 70deg to 80deg, and very little moisture is required at the base at the start.

SUCCESSION HOUSE.—This house should, at the end of the month, be ready to start into growth; but as regards advice, so much depends upon when the fruits are required, as old trees respond so readily when warmth is applied. There is a great advantage in having these fruits in June and July, as then a good second crop may be secured. The early or first crop should never be allowed to suffer, as this gives the best fruits. To forward a crop it is a good plan to place some fermenting material over the roots. This will induce the trees to respond freely, and develop or swell the fruits. This done, care must be taken to give free ventilation in suitable weather. Trees are often subject to attacks of scale, and now is a good time to get rid of this troublesome pest by a thorough dressing of Gishurst compound.—G. W., Brentford.



All Correspondence relating to editorial matters should be directed to "THE EDITOR," 12, MITRE COURT CHAMBERS, FLEET STREET, LONDON, E.C. Persons sending manuscript or photographs, when not specially requested by the editor, and making no demand for remuneration, are presumed to solicit publication without payment. In order that no misunderstanding may arise, and in order to secure the return of their contributions, contributors should state the fact that they expect remuneration, and in all cases, even when contributing voluntarily, correspondents should enclose a stamped envelope if they expect their enclosure to be returned.

AURICULAS.—"G. S." wishes for the direction of florists in the north of England who can supply Auriculas. If they advertised, our correspondent says "a brisk demand would soon sell out any grower."

PAINTING FLOWER POTS (V.).—It is not advisable to paint the outside of flower pots, as it takes away their porosity, shutting the roots out of atmospheric influences. The pots ought to be kept clean washed, free of mossy accumulations.

POINSETTIA PULCHERRIMA (Idem).—This plant blooms best in a temperature of from 60deg to 65deg, but will do with a lower minimum, say 55deg for an average, a few degrees lower and higher than this according to the weather. The leaf enclosed seems to be from a species of Funkia.

EMIGRATION TO THE UNITED STATES (W. S., Leith).—Your best plan would be to advertise in, or write to, the "Florists' Exchange," 2-8, Duane Street, New York. Why not go to a British colony, like Tasmania, New Zealand, or British Columbia?

USE OF SHADED BORDERS (D. C.).—Your borders outside the garden wall facing the north and east and much shaded are precisely such as gardeners value for securing a late crop of Strawberries. Black Currants would also answer well in such a position, as would Violets and Lily of the Valley.

POISON FOR ANTS (A. L.).—We do not know of anything better than phosphorus paste, which could be mixed with the honey. If you kept the plants sprayed with paraffin emulsion, washing it off before it had time to do the plants harm, this should assist. Of course, this could not be done with ferns and such like plants.

WINTERING ADIANTUM CUNEATUM (M.).—We have seen it wintered in a room where a fire was only kept in cold weather. The plant was well attended to as to watering and keeping the fronds free from dust. The potting material was composed of turfy loam and turfy peat in equal proportions with a little sand; a few bits of charcoal added is an improvement.

CARTRIDGE PAPER FOR PLAN DRAWING (T. D.).—It seems incredible that you are unable to purchase suitable plan-drawing paper in Northampton. We enquired at Messrs. Partridge and Cooper's, law stationers, Fleet Street, London, E.C., and they think you ought to be able to procure what you desire. If you cannot, they could send by rail a suitable amount of paper, price about 2s.

MANAGEMENT OF CAMELLIAS AND AZALEAS (Amateur).—We think you are rather impatient. If the Camellia buds do not drop they will swell out and open in due time. We are afraid the compost will not do for Azaleas. They ought to be potted in turfy sandy peat, not bog peat, without any loam. Bog peat does not answer for Camellias either. Good turfy loam one-half and the other half turfy peat, the same as that used for Azaleas, will answer. The temperature is all right, and so is the other treatment.

GROWING PEACH TREES ON BORDER FENCE (Hortus).—Yours is rather a favoured district, but we cannot give you the assurance that Peach trees will be perfectly successful, still the plan is worthy of a trial. Peaches have been ripened on espaliers on a south sloping hill in Essex; we have also ripened Nectarines on a standard tree in a shrubbery. The difficulty is to maintain the trees in good health. They are roasted by day and chilled at night, and it is very difficult to keep aphids and red spider from them; and worst of all the spring frosts cut off the blossoms, or dull cold days and nights prevent their setting. There is no other way we can recommend except to build a wall or an orchard house.

SOWING ACACIA SEEDS (Amateur).—The plants are easily raised. If you have no greenhouse sow in pots in light loam and leaf soil, and place the pots in a gentle hotbed in March. The seedlings will come up in two or three weeks.

CHINESE PRIMROSES FROM CUTTINGS (Idem).—Except for the double varieties propagation from cuttings is not nearly so good as raising plants from seed. The cuttings are best taken so soon as the flowering is past, or from March to June, they requiring a rather close and warm atmosphere with shade to root freely.

ROSES SHEDDING THEIR LEAVES (Edghaston).—The symptoms are those resulting from an imperfect supply of water and bad nourishment. Repot (but do not disturb the ball much, only picking out any loose soil from among the roots), in turfy loam with a fourth of decayed manure added, providing good drainage. Sprinkle the plants overhead twice a day, morning and evening, watering with weak liquid manure at every alternate watering after the flower buds show.

GRUBS IN STRAWBERRY BED (H. S. F.).—It is likely the grubs will do your Strawberry plants considerable mischief. We should go over the plants, examining each separately, and destroy the grubs, making the soil firm about the plants afterwards. A dressing of gas lime at the rate of twenty bushels per acre is good against the grubs, and watering with ammoniacal liquor from the gasworks diluted with water, one gallon of ammoniacal liquor to twelve of water, giving each plant a good watering, would be sufficient.

NAMES OF FRUIT.—Correspondents whose queries are unanswered in the present issue are respectfully requested to consult the following number. (W. B.).—The Pear is Huyab's Prince Consort, late fruits.

NAMES OF PLANTS.—Correspondents whose queries are unanswered in the present issue are respectfully requested to consult the following number. (J. O.).—1, *Lamium purpureum*; 2, *Veronica Buxbaumi*; 3, *Euphorbia Peplus*. (Juvenile).—*Tacsonia eriantha*. (J. M.).—*Cheilanthes* sp. (W. M. B.).—It may be a species of *Westringia*, but the specimen is insufficient. (J. F. Cranswick).—The fern is immature. The flower is *Alonsoa incisifolia*. (Mrs. L.).—A form of *Lastrea spinulosa*.

Trade and Miscellaneous Notes.

A Trio of Odontoglossums.

Under the heading in the issue of November 14, we published a few notes from our Boston, Mass., contemporary "Horticulture," and the "Orchid Review," in reproducing the same extract out of our pages, gives us the credit. The original source was "Horticulture."

Baker's Pocket-Book.

Messrs. Bakers, of Wolverhampton, send us one of their pocket books, containing also an insurance coupon for £1,000. Each gardener who is a customer receives one of these books. They contain hints on the making of new lawns, and on the renovation of old ones; on the cultivation of Asparagus and other vegetables; on trenching and various gardening operations, besides many pages for memoranda.

Trade Catalogues Received.

Seeds.

Baker's, Wolverhampton.

Barr and Sons, 11, 12 and 13, King Street, Covent Garden, London.

G. Cooling and Sons, Bath.

Frank Dicks and Co., 68, Deansgate, Manchester.

E. P. Dixon and Sons, Ltd., Hull.

F. C. Heinemann, Erfurt, Germany.

Peter Henderson and Co., 35 and 37, Cortlandt Street, New York.

Frederick C. Pomrencke, Altona-Hamburg.

Ant. Roozen and Son, Overveen, near Haarlem, Holland.

(General agents for Great Britain: Mertens and Co., 3, Cross Lane, St. Mary at Hill, London, E.C.)

Smith and Simons, 36-38, West George Street, Glasgow.

Charles Turner, The Royal Nurseries, Slough.

Thos. S. Ware, Ltd., Feltham, Middlesex.

A. Ll. Gwillim, Cambria Nursery, New Eltham, Kent.

—*Begonias*.

Ant. Roozen and Son, Overveen, near Haarlem, Holland.

—*Spring Bulbs*. (See also under "Seeds.")

Vilmorin-Andrieux, 4, Quai de la Mégisserie, Paris.—*General Catalogue*.

Thos. S. Ware, Ltd., Feltham, Middlesex.—*Begonias*.



Notes from America.

We have been favoured with two excellent books on agriculture in the United States; one by E. B. Voorhees, D.Sc., on "Forage Crops," published by Macmillan and Co.; the other on "Farm Grasses," by Mr. W. Jasper Spillman, published by the Orange Judd Co., New York, and Kegan Paul, Trench and Co., London. These appear to be excellent works for American farmers, and are most exhaustive in the supply of information which may be of use in the States, but in many respects are like a foreign and unstudied language to the British ear.

We believe, however, that the study of foreign languages is quite necessary for a complete education, and therefore it naturally follows that the study of foreign methods of farming is necessary to the modern farmer of any country as part of his equipment in the attempt to make his farming a success.

Mr. Spillman's book is very exhaustive in its description of all kinds of grasses grown in the States, and we are particularly struck by the number of varieties which he designates as weeds. If they are weeds in the States, we can do without them here, as we have plenty of our own. Blue grass of Kentucky seems to be the grass he recommends for pasture. This is *Poa pratensis*, our smooth-stalked meadow-grass, a grass of very tenacious spreading root, very early in providing a bite, and resisting hot weather to a high degree. That such a grass is suitable for the hot States of America we readily believe, and it would no doubt be most useful as a foundation for permanent pasture on dry soils in this country.

It would appear from a careful study of Mr. Spillman's work that American farmers are not very enterprising in paying for good grass seeds. The reason may be that, as he states in another place, hay is very difficult to sell in America, and farmers who grow grass for hay are continually ploughing up their grass fields after a year or two's trial, and reverting to corn or anything which for the time being may be in demand.

We will quote one sentence of Mr. Spillman's:—"Mixtures of timothy red-top, orchard grass (cock's-foot), tall fescue, blue grass, Canada blue grass, and the clovers, including Alfalfa, deserve to be tried extensively all over the north of the country for permanent pasture. Until this is more generally done it is impossible to state what the result would be." The writer believes a mixture of all the above varieties named would furnish more pasture in many parts of the country than the common mixtures do. What are the common mixtures? Are they something akin to the sweepings up at the bottom of a haystack? or are they composed of the varieties of grass which have already been designated weeds? We remember very well a neighbour sowing a field with cock's-foot for hay. Cock's-foot in America is known as orchard grass. He had a fine crop of cock's-foot, although he found his hay too coarse, but amongst that cock's-foot he got a grass which was most difficult to eradicate. Whether this was one of the weedy grasses of America we do not know, but we have an opinion. It was certainly a grass new to our experience.

We notice that Mr. Spillman is not altogether in favour of early cutting of hay. He acknowledges that early cut hay contains more protein, but thinks that the protein may be more cheaply obtained elsewhere, and does not compensate for the loss in weight of the crop. He also maintains that hay which is well ripened before cutting is more palatable to stock. This is not our experience, but perhaps what Mr. Spillman describes as full maturity we might consider only half fit.

Mr. Bailey's book on "Forage Crops" is in many respects more interesting to the English observer, for it indicates how much the American farmer has been driven to copy our methods and discard his dependence on the virgin fertility of his soil. A book like Mr. Bailey's provides abundant evidence that the land of the States requires new methods to make it profitable. Many of the crops recommended for fodder, such as maize, would be useless here, but no doubt are very valuable out there. We note, however, that great importance is attached to clovers, the great value of which was never estimated higher in this country than at the present time.

A very striking point we notice is the recommendation of cabbages as a food for stock. This shows clearly how much methods in America are being diverted towards our own. "The limitless prairies" are evidently finding a limit somewhere.

Even the potato, which we sometimes have to supply for New York, is recommended to be grown as food for cattle and

pigs. We seem here to be partly let into the secret of dearer beef and pork in America, for if maize-fed pork fails to provide a sufficient supply, and American farmers have to grow potatoes and feed pigs as we do, there will be no more cheap bacon. Just the same as regards beef. If, as we judge from a perusal of this book, forage crops, root crops, cabbages, and all the rest are becoming necessary to American agriculture, there must result a very great relaxation of the strenuous competition which we now for so many years had to face.

Mr. Bailey's book not only deals with all the new ideas which are now to the front in the States, but contains some very valuable statistics on the values and constituents of different foods, many of which are very interesting, as we are unfamiliar with them.

Work on the Home Farm.

The black frost returned to us, and we have had a week of it, much to the satisfaction of the skaters and also of the parents who had big boys and girls home for the holidays and requiring amusement.

Meanwhile the land as regards movement is idle, but only in appearance, for the frost is doing work which no implement, however scientific, can perform. The absence of snow has given the frost every opportunity to take effect. We were opening a potato pie the other day and were surprised to find how thick the frozen crust was, and also how much digging into the sub-soil was required to find loose soil to recover with. "Happing up" we call it here, not "recovering," but either term will do. There is an increasing demand for potatoes, and buyers are not only willing to risk frost, but offer better prices, so our stocks, already low, will soon be at vanishing point.

Manure leading is now practically the one occupation, and as there is plenty of it to do there will be no lack of work for the present. One neighbour has not moved a forkful since he brought his cattle up so a month's frost and hard roads will be appreciated as much by his horses as by himself. Our roads just now are perfect, and if farmers will clear their yards while they are in this condition they will save cost in highway rates as well as in their own labour bill.

Manure may be spread on seeds which are to be ploughed for barley, for oats, or for potatoes, and it may be led into hill ready for mangolds or swedes in spring. For mangolds we prefer spreading the manure on now, and ploughing it in as soon as the weather will allow.

The sheep are comfortable, but the roots are very hard. There has been no snow to protect them, and they are like rocks. We fear they will rot when a thaw comes, so face the difficulty by cutting as a lesser evil than keeping them to go bad. Fortunately we shall soon be able to turn to stored stuff. We might use it now, but must keep off as long as we can. The sheep like a few roots, although they may be frozen ones, but they live chiefly on cut straw with a few malt culms, and a little barley meal with a handful or two of hay.

A Department of Agriculture for Scotland.

Under the above title, Mr. M. G. Wallace, Terreglestown, Dumfries, has issued a pamphlet, in which he says: During the past twenty-five years there has been a remarkable development in the work of the public departments of agriculture in the countries of Northern Europe. The State, in France, Belgium, Holland, Germany, and Denmark, recognising the social and economic importance of agriculture, has been taking a much more active part in promoting its welfare. The great benefits which have followed from this action on the part of the State are beyond question, and now, when the problems of keeping our people on the land and of developing fully the resources of our soil are forcing themselves on public attention, we, as Scotsmen, have to ask ourselves should a Department of Agriculture also be established in Scotland, and, if so, what should be its character and constitution? Ireland has had an Agricultural Department of her own for seven years, and, if frequent reference is here made to the case of Ireland, it is because I have had many opportunities during recent years of seeing the development which is steadily taking place in that country, and the practical effect which the schemes of the Irish Department of Agriculture are having. Mr. Wallace, who is well known to many horticulturists south of the Cheviots, sets out the constitution and functions of such a Board.

Schedule Received.

North Lonsdale Rose Society; secretary, Mr. F. J. Harrison, Rosedene, Ulverston. The twenty-fifth annual exhibition of this society will be held in Todbusk Park, Ulverston, on Friday, July 17. An open challenge shield, eight challenge cups, several gold and silver medals, and £200 in money prizes will be awarded. Roses, Sweet Peas, Violas, and hardy border flowers are encouraged.

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Journal of Horticulture.

THURSDAY, JANUARY 30, 1908.

Colour Problems.

HOW often we hear the comment that "a certain colour is badly needed." It may apply to Chrysanthemums, Dahlias, or, in fact, to almost any species of flowering plant, as there are few of which it can be said that it is equally easy to raise varieties of all the different colours which exist in that particular family. It is not that the species is always loth to depart from any particular colour possessed by the original from which the race was, step by step, evolved, and to which it might be feasible to suppose it would constantly revert. There is a striking instance of this in the cactus Dahlia, which, notwithstanding that the original species Juarezi was a crimson-coloured flower, at the present day it is the crimson and dark flowered varieties that lag behind.

One of the greatest puzzles met with in raising seedlings is the continual recurrence of a certain specified fault in flowers of a given colour. This might be easily explained if the seedlings were from year to year saved from the same parents, but in many cases this is not so, and yet throughout a number of generations of seedlings, but remotely related one to the other, it is found that those which possess a certain much desired colour also persistently develop the same failings, either of form, habit, or constitution.

To go farther; very often, not content with having one predominant fault, varieties which are of the coveted colouration, and which may be fairly plentiful in seedlings, yet never possess the requisite qualifications which constitute a good variety. Thus the much coveted colour may be, and often is, represented in the seedling to an average extent, and yet by no known means can a variety be obtained possessing, in addition to the colour, the other necessary points. As an instance of the truth of this remark take the white cactus Dahlia. During

READERS are requested to send notices of Gardening Appointments or Notes of Horticultural Interest, Intimations of Meetings, Queries, and all Articles for Publication, officially to "THE EDITOR," at 12, Mitre Court Chambers, Fleet Street, London, E.C., and to no other person and to no other address.

No. 1140.—Vol. LVI. THIRD SERIES.

the past twelve years there has been a long series of white cactus Dahlias actually put upon the market, but the sad failures of many of them are a matter of Dahlia history to-day, and it is the white cactus we want still.

How many white seedlings have been raised it would be difficult to enumerate; but it would be safe to say that more white seedlings have been tenderly nurtured than of any other colour; but white is the difficult colour of the cactus Dahlia, and to scarcely a lesser degree the very dark as well; and so surely as a plant produces a white or dark, so, when grown on trial, does that particular variety develop some unlooked-for and often ridiculous fault. We say ridiculous fault because in more instances than one we have known varieties which, being of a rare colour, and having apparently escaped every imperfection known to ally itself with that particular tint, yet as though to still thwart the raiser, it eventually develops an entirely new and galling blemish, sometimes in the bloom, and at other times in the plant.

As an illustration of this point, some years ago, prior to the raising of the white Dahlia Keyne's White, we raised a white Dahlia in every respect perfect until the flower was half open, and then the lower half of the florets became transparent, exactly as if the whole of the enamel, as it were, of the floret had been wiped off, and which hopelessly spoiled the flower. No variety that we know of had ever done this before, and it was never seeded from; yet years afterwards the same thing occurred in another white seedling.

Still another very interesting feature in the raising of seedlings is the lead kept by certain colours in the advance made in form or otherwise. In Chrysanthemums, for instance, yellow and white lead year after year, and in these colours are to be found the best all-round sorts; but to come to dark varieties, we hit upon exactly the same thing as what we alluded to. Not only are the dark colours the difficult ones from the raiser's point of view, but, as the grower knows to his cost, the dark Chrysanthemums are very mutable, and have in many instances most unusual and puzzling defects, which make a perfect example of a deep crimson colour a comparative rarity. On the other hand, there are many colours which are simply dependent on the admixture of the colours of the parents. The artist has to mix certain colours to get others, and doubtless much the same thing occurs in the crossing and raising of seedlings, as although a certain proportion may take the exact colour of either parent, yet some are mixtures. A striking instance of this can be seen in the case of seedlings from white flowers crossed with other colours, as although light shades may be practically unknown until a white is obtained, yet after once this is accomplished it is a simple matter to get every shade of pink from the faintest to a deep rich rose. Thus, to get certain shades, especially the lighter ones, may take years of patient labour, and the road to success may be very circuitous, and—to use a common term—we may have to go round the sun to get to the moon, or in other words, get a certain colour first in order to eventually obtain the one aimed at from it. Such colours are, however, quite a different matter to what may be termed difficult colours, as very often once the necessary colour or combination of colours is obtained in the parents from which seed is saved, the seedlings which exhibit the desired tints may not only be exceedingly numerous, but they may also be of the finest possible form and habit, and in the course of a few years the once almost unknown colours may be the most common of any.

Very few of those who lay down the law so definitely as to what the raisers of any particular species of flower, fruit, or vegetable should aim at, have more than a hazy idea of the difficulties which beset the path of anyone who essays to improve the form or habit, or eradicate existing faults in any branch of horticulture. One of the most surprising features in the raising of new flowers is the low percentage of the progeny which are fortunate in possessing the characteristics favoured by the expert. Any and every variation in form or colour may occur, but it would seem that Nature will only give way to a certain advance yearly, and that grudgingly, as although to the unobservant outsider new varieties possessing the necessary points may appear numerous, yet taking into consideration the many thousands of seedlings all raised from the finest types in existence, the number which actually may be said to be improvements is very small indeed, and in many varieties of florists' flowers it is safe to say that not more than a seedling in ten thousand ever becomes a standard variety.—S.

In another fortnight or so we will have the Royal Horticultural Society's arrangements for the year before us. Of course, there are the Temple and Holland House Shows, which are definitely fixed—the one for the 26th of May and two following days; the other for July 7 and 8. But with these exhibitions in London, as well as the National Rose Society's fashionable show at Regent's Park, and the Sweet Pea show at Vincent Square, one wonders whether the horticultural

displays that are to be included as part of the summer programme at the Franco-British Exhibition will be well supported. It would seem as though nurserymen will have to be prepared for great endeavours this year. Then the York Gala is celebrating its jubilee this year, and the executive are offering over £1,000 in cash prizes, which means a great entry there, on June 17. Shrewsbury is, as ever, well equipped and complete, and there will be the other big shows at Edinburgh (April 15), Wolverhampton, Cardiff, and Southampton. Southern Sweet Pea growers will be handicapped this year, as the N.S.P.S. is only holding one show in England this time, which has been fixed for July 24. This, however, will afford the Scottish and Northern growers (weather permitting) an excellent opportunity.

On another page we report the proceedings at the annual meeting and election of pensioners in connection with the Gardeners' Royal Benevolent Institution. So well is this

The Gardeners' Royal Benevolent Institution.

charity supported that it ranks amongst the foremost of its kind in the United Kingdom. One would rather, of course, that gardeners were sufficiently well paid to be able to save a substantial sum against the rainy day; but even with augmented weekly wages, that would not totally abolish the need of an institution such as the above is. Have we no examples before us of men in well-to-do positions suddenly finding themselves plunged into financial difficulties from circumstances of various kinds, and with ill-health enfeebling them, they have at length utterly failed in the battle against odds, and have perforce had to seek help from the source to which our references apply? Quite a number of remarkable instances could be described in which this course has been exhibited. In other cases, and perhaps these are the more numerous, the husband's illness and the expenses of his obsequies have swallowed up the little "balance at the bank," leaving the aged widow practically penniless. Happily we observe that many gardeners see their duty in this matter, and have either become life members or annual subscribers of one guinea. The candidate for election as a pensioner has but a very small chance of being voted upon the funds compared with one who has been a subscriber, or the widow of a subscriber.

The objects of the institution can hardly be unfamiliar to readers of the *Journal of Horticulture*, but at any rate we again repeat them:—"To grant permanent relief, by way of annuities, to aged and distressed gardeners, market gardeners, market growers, nurserymen, seedsmen, and their necessitous widows. Temporary relief is also awarded to candidates awaiting aid, from the 'Victorian Era' Fund, and grants of money in urgent cases of trouble and distress, from the 'Good Samaritan' Fund." Since the election last Thursday (January 23), there are now 250 pensioners receiving permanent aid; but we still find over fifty applicants awaiting the benefits. Naturally a large annual income is required—a sum of over £4,000, indeed, is necessary. How is this to be met? Only by the subscriptions of gardeners themselves, and by the benevolent contributions of the wealthier patrons of gardening. The latter section, it must be said, do their part admirably and liberally; but gardeners themselves could do, and ought to do, more. An annual subscriber has five votes for each guinea; and a donation or collection of ten guineas paid in one sum constitutes life-membership, with five votes at each election, and an additional five votes for every additional ten guineas so contributed. It is well to observe that ten separate instalments of one guinea each do not constitute membership, for the life-membership fee should be paid in lumped sum. The want of knowledge on this point has caused soreness in certain cases.

Best of all, for the sake of the organised co-operation it affords, would be the establishment of branches in many more parts of the country. At present there are only six auxiliaries—the Bath and Bristol, the Worcester and district, the Wolverhampton and Staffordshire, the Berkshire, Reading and district, the Devon and Exeter, and the Liverpool. Each of these auxiliaries has its own president, vice-presidents, and executive officers, who subscribe and collect locally, and send up their total funds to headquarters in London each year. In this way, by enthusiastic co-operation, several thousand pounds sterling have been gathered in during the past few years. Each auxiliary, of course, does its best to promote the cases of its own candidates at the annual election. We should much like to see branches started at Edinburgh and Glasgow, and one also at Dublin, in each of which cities there are vigorous associations of gardeners and nurserymen. We feel sure that applications for information or for the annual report, made to Mr. Geo. J. Ingram, 175, Victoria Street, Westminster, would receive ready and courteous attention.

At the annual election a week ago, 95,942 votes were polled! At the rate of five votes per guinea, this is surely encouraging. But an unwelcome fact at each recurring election is the number of unsigned papers, which, of course, are valueless. No fewer than forty-eight papers were returned unsigned, representing a loss of 355 votes.

**Cypripedium × Sultan.**

On January 14 this received a first-class certificate when shown by Major Holford (grower, Mr. H. G. Alexander), Tetbury, Glos., at the Royal Horticultural Society's show. Parentage: Cyp. Mons. de Curte × Milo, Westonbirt var. It is quite one of the best of its genus; a really superb flower. It is large and strong with firm, shining segments. The very large dorsal has a green ground colour, heavily blotched with rich deep crimson-brown, the edge white. The petals are mahogany-red, as is the lip, each being edged with a greenish-gold.

Cultural Notes.**The Various Structures and Their Occupants.**

In writing calenderial notes it is necessary for the reader to understand the various terms employed before he can receive any material assistance. With this object in view we will attempt to describe the different structures or divisions that are needed where a general collection of orchids is grown. Taking the East Indian house, or warmest division, first, we find at this season a large quantity of fire-heat is required to keep the temperature at 60deg to 65deg F. during the night. To counteract this the stages and floors must be frequently damped to maintain the atmosphere in a humid condition, and the air pure by ventilation, when less direct watering of the plants is needed, while the evil effects of fire heat are reduced to a minimum. Here are cultivated the Vandas, Renantheras, some of the Cypripediums, Phalaenopses, and the Dendrobiums through their active season, unless a particular house is set aside for them. The Cattleya house is usually occupied by members of the genus named, and other genera that want similar treatment. Some of the Cattleyas that need a few

**Cypripedium × Sultan.****Vanda cærules.**

This popular autumn-flowering plant ought now to be kept rather on the dry side till the spring, when growth recommences and root action is evident by the roots appearing green at the tips. It is a variable species, in which various shades of colour may be seen, from nearly pure white to a deep blue, and it also varies in the size of the blooms.

During the growing period a light position in the East Indian house, or at the warmest end of the Cattleya division, should be given, preferably near a ventilator where they can receive plenty of air. When in flower it is best to remove the plants to a dryer and cooler house where they can remain for the winter months. The potting mixture is made up of one-quarter of fibrous peat, and three-quarters of sphagnum moss, with the pots partly filled with drainage.

degrees more warmth, such as C.'s Lawrenceana, Eldorado, and Warneri, now they are growing, may be placed at the hottest part, and others in a resting state may be arranged at the cooler end. *Lælia purpurata*, which will soon have finished its growth, *L. crispa*, and all the *Lælio-cattleyas* may be accommodated in this division. The *Miltonias* ought to be given a little more shade than the *Cattleyas*, otherwise they do very well, and the same might also be said of the *Oncidiums* hailing from Brazil.

Odontoglossum citrosum must now be kept on the dry side till flower spikes appear in the new shoot. Any who are unacquainted with this species should not be anxious because the pseudo-bulbs shrivel slightly, for they soon regain their rigidity when given water in greater quantity. *Coelogyne cristata* does well at the cooler end, and several of the dwarf

*Epidendrum*s, including the charming *Endresii*, *E. Armstrongii* and others. At present the temperature should be as near 60deg F. as possible, varying a few degrees either way, but the maximum must be reached at midday. Most of the inmates are resting, so will not require a lot of water for the next few weeks.

In the intermediate house the *Cymbidiums* thrive better than anywhere. They are not attacked by scale, and the foliage presents a more healthy appearance than when subjected to excessive heat. *Miltonia vexillaria* is in full growth, and the cultivator must be ever on the watch for over-watering, fluctuation of temperature, and insufficient fresh air. If these cultural details are correct it will prevent the leaves from decaying at the tips, or shoots rotting at the base. It is also advisable to see that the foliage is not crippled by the edges of the young leaves clinging to each other; they should be released with the handle of a budding knife. *Lycastes* are now more or less in a state of repose, but do not permit the bulbs to shrivel, and directly flower buds are discovered water more freely. *Anguloas* may receive the same treatment. Many of the *Oncidiums* succeed here, and some of the *Maesevallis*s, especially the *chimera* section. The normal temperature is 55deg to 60deg F. Next week we shall deal with the cool house.—T. ANSTISS.

Manchester Show.

The success attending the efforts of orchid growers in Manchester and the North of England was again exemplified in the exhibition held on the 23rd at the Manchester Coal Exchange by the Manchester and North of England Orchid Society. There was an excellent display of blooms, not only from the district covered by the society, but from other parts of England. The premier award went to Mr. H. J. Bromilow, of Rainhill, Liverpool, the prize being a silver-gilt medal. Mr. Bromilow showed a magnificent display of *Cypripedium*s. The best award for individual plants was given to Mr. S. Gratrix, of Whalley Range, who received three first-class certificates for three very handsome and distinct *Cypripedium*s of great value. Mr. H. Warburton, of Haslingden, received silver medals for a varied collection, including *Odontoglossum*s and *Cypripedium*s; and Mr. Z. A. Ward, of Northenden, a silver-gilt medal for a fine group of *Odontoglossum*s. It is becoming more and more evident that the Northenden climate suits this class of plant very well. Mr. J. Macartney, of Bolton, received a silver medal for a group in which were some very beautiful *Lælia anceps*, *Odontoglossum*s, and *Cypripedium*s. Mr. J. H. Craven, of Keighley, was awarded a bronze medal for *Cypripedium*s, in the Sanders competition, the award being a twenty-five guinea cup. Mr. G. Shorland Ball, of Burton, Westmorland, was awarded a silver medal in this competition for a choice group of *Cypripedium*s. Messrs. Charlesworth, of Bradford, Yorkshire; Stanley and Co., London; Mertens, Ghent; Keeling, Bradford; Cypher, Cheltenham; Low and Co., Enfield; Mr. Bolton, Warrington; and Mr. Robson, Altrincham, received various awards for contributions to the show. The committee is anticipating the holding of a large show in Manchester, early in April, which should create a large amount of interest among orchid enthusiasts.—("Manchester Courier.")

British Orchids.

"Some British Orchids" was the title of a lecture given by Mr. H. Edmonds, B.Sc., at a meeting of the Brighton Natural History and Philosophical Society held in the Brighton Corporation Art Galleries, Church Street, last week. Orchids, he observed, were widely distributed, being found everywhere except in the Polar regions, but they reached their greatest development in the hot, moist atmosphere of tropical forests. Here they were usually found as unbidden guests growing on branches or trunks of trees. But although flourishing in such a position they were not parasitic. They did not take their nourishment from their hosts as was the case with the Dodder and Mistletoe; they were provided with remarkable aerial roots which, hanging down in the atmosphere, took their nourishment from the gases present and the moisture, which they condensed. The family was a most extensive one. Yet, though so numerous, no specimen appeared so prolific in individuals as to constitute a feature in the landscape. The British orchids numbered about forty species, distributed among some sixteen or seventeen genera. Of these species, according to the new edition of Arnold's "Flora of Sussex," twenty-eight were found in this country. Some fifteen of these species were described in great detail by Mr. Edmonds, his remarks being illustrated by many lantern slides. At the close of the lecture Mr. G. Morgan conveyed the thanks of the audience to Mr. Edmonds, and observing that in Shropshire, where he formerly lived, he had never found a third of the orchids that he had discovered in Sussex, asked what determined the growth of the flowers. Mr. Edmonds replied that many of the orchids seemed to grow upon chalk, while the Bee Orchis and others were to be found only on the northern side of hills—never on the sunny side. There also seemed to be certain heights at which they flourished.

NOTES

NOTICES

National Chrysanthemum Society.

Notice is hereby given that the annual general meeting of the members of the above society will be held at Essex Hall, Essex Street, Strand, W.C., on Monday next, February 3, at seven o'clock in the evening.

Croydon Chrysanthemum Society.

The twentieth annual meeting will be held at the County Hotel, Station Road, West Croydon, to-morrow, Friday, January 31, 1908. The chair will be taken at 8.30 p.m. by the Mayor (H. Keatley Moore, Esq., J.P.), accompanied by G. J. Allen, Esq., president.—W. B. BECKETT.

School Gardens in Essex.

The Essex Education Committee have published their report on elementary school gardens for the year 1906-7. "The forty-two school gardens in Essex were carefully inspected during the late spring and the summer of 1907, and, speaking generally, the work seen deserves much praise. Gardening is a subject which should have a foremost place in the curriculum of an elementary school where circumstances admit of its introduction. It is eminently practical, and provides both manual and mental training; it arouses children's interest in Nature, and encourages them to observe accurately. Experience shows that the efficient teaching of gardening causes no deterioration in the general school work. On the contrary, it is found to induce a more intelligent interest in the ordinary school subjects by showing their practical utility in the processes of every-day life. In order that gardening may occupy its proper place in the school course it is essential that the educational aim should be paramount, and the pecuniary value of the produce or the rearing of exhibition crops of secondary importance. The main object is not to train boys to be professional gardeners. The subjects with which it can be profitably correlated are composition, mensuration and arithmetic, Nature-study, and drawing."

Nurserymen at Law.

In the Chancery Division, before Mr. Justice Kenny (sitting for the Master of the Rolls), the case of *Alex. Dickson and Sons, Limited, v. Alexander Dickson and Sons* was mentioned on cross-applications by plaintiffs and defendants for leave to administer interrogatories to each other. Plaintiffs, who carry on business in Newtownards, Belfast, Dublin, Blackrock, and also Hertfordshire, applied for an injunction restraining the defendants, who are also nurserymen carrying on business at Woodlawn Nurseries, Dundrum, and Parliament Street, Dublin, from selling *Roses* or seeds not grown or propagated by the plaintiffs as "Dickson's *Roses*" or "Dickson's seeds," or as "Dickson's Irish *Roses*," and from carrying on the business of nurserymen and seedsmen under the style of *Alexander Dickson and Sons*, or any style in which the name *Dickson* appears, without taking reasonable precautions to clearly distinguish the business carried on by defendants from that carried on by the plaintiffs; and also for an account and an inquiry as to damages. The plaintiffs allege that *Roses* and seeds grown and propagated by them have been largely advertised as *Dickson's *Roses** and *Dickson's seeds*, and thereby acquired a reputation for excellence in the home, Colonial, and foreign markets, and that *Roses* and seeds stated to be *Dickson's* would be understood in the trade and by purchasers as the plaintiff company's *Roses* and seeds; and they allege that the defendant, *Alexander Dickson*, who until January last year carried on business as the *Ashbourne Agricultural Company*, had, for the purpose of taking advantage of the reputation of the plaintiff company's *Roses* and seeds and appropriating their trade connection, commenced to trade under the name and style of *Alexander Dickson and Sons*. The defendant firm repudiates all these allegations, and deny that there is any foundation for them. Mr. Justice Kenny made the orders sought for.—("Irish Daily Independent.")

Mr. Lewis Castle.

We regret to learn of the death, on Wednesday, January 15, of the eldest daughter of Mr. R. Lewis Castle. Our sympathies go out to the bereaved father.

Popularity of Kew.

The number of visitors to Kew Gardens last year was 2,962,714, the number on Sundays being 1,268,501, and on week-days 1,694,213. The total shows an increase of 623,222 visitors over 1905, in which year a record was established.

The Church of England Society, Bristol.

Under the auspices of the St. Martin's Branch of the Church of England Men's Society, a monthly series of lectures on ecclesiastical, educational, and general subjects of every-day interest has been arranged for the winter session. The January lecture, given in the schoolroom by Mr. T. P. Elkes, head gardener at St. Agnes, Knowle, Bristol, deserved a larger audience than it received. The subject, "Roses and their Culture," was dealt with by the lecturer, with particular reference to the conditions prevailing at Knowle, the soil of which is peculiarly adapted to the successful treatment of the "Queen of flowers."

The late Mr. S. H. Edwards.

A fortnight ago we sat at the Press table in the composing room engaged in "passing the pages" of the *Journal* for the weekly issue with our veteran proof-reader *tête-à-tête*. Last Sunday afternoon his spirit took its long flight, and to-morrow his mortal remains will be in the silent grave at Nunhead Cemetery. Our proof-reader, Mr. Samuel H. Edwards, had come to be looked upon as an institution at Mitre Court; and while there are several upon the staff who seem to have developed from quite small lads into splendid and big-framed men, "Old Sam," as we affectionately called him, never seemed to change. At his decease we believe he was in his seventy-eighth year. Of course, latterly his duties have been made as light as possible, but though virtually on the superannuated list, he could not be happy away from that desk in the composing room, amid the din of the linotypes, and the bustle and hum of "the chapel." His tastes and his life were of the simplest; indeed, we cannot imagine a life less self-centred or less distressed with worldly vanities. Our departed comrade—for we of the *Journal of Horticulture* staff form a united harmonious family—had been proof-reader for fifty years almost to the day, and consecutively on this paper. He began actually in Winchester (where the *Journal* was then printed) in September, 1857, the year of the Indian Mutiny, but was absent during 1858, resuming again on February 5, 1859. His reminiscences as an amateur gardener in the ancient British capital were recounted, as our readers will remember, in the Spring Number of 1902. Then three years later the *Journal of Horticulture* began to be printed, as well as published, in London, and from then till now Mr. Edwards had lived in the great metropolis. His mind was perfectly clear and alert until the day he ceased work; quite bright, indeed, until he died. On Sunday at mid-day he was cheerful and able to sit up, but then he suddenly collapsed: "the spring broke." A testimonial to his faithfulness and honest, careful work in correcting the printed sheets is not necessary from us; our readers have many times sent their congratulations. Only this week the octogenarian writer of "Recollections of Rose Showing," gave this verdict upon his recent article: "A marvel of careful printing, and with very bad copy, too." To the younger among us Mr. Edwards left an excellent example of patience and of piety. He had a strong religious vein, and in concluding his autobiographical notes six years ago, he expressed no fear of death: "A few more years shall roll—perhaps very few, and then it will be my turn to pass through the Valley of the Shadow of Death; but I will fear no evil, for One whom I have loved and served will be with me, and I shall be re-united to those dear ones who have gone before, and to the 'commanding officer.'" The last allusion was to his wife, who had predeceased him many years. To his sons and daughter our sympathy is extended. "Peace and glory to his memory." He has accomplished the work he was called upon to do, and has been borne to the sphere of rest.

Croydon Gardeners' Annual Festival.

The Croydon and District Horticultural Society held its eighth annual dinner at the "Greyhound," on Wednesday, January 22. Mr. J. J. Reid, president of the society, again filled the chair, with Mr. J. Heal in the vice-chair, amongst others present being Messrs. F. Oxtoby, J. Gregory, M. E. Mills, W. E. Humphreys, A. H. Naylor, Dr. Jackson, Dr. Augustus Voelcker, G. Dray, W. Bentley, W. Rowson, P. F. Bunyard, C. Lane, R. B. Leech, F. C. Squire, W. H. Young, J. Cutler, O. Jeal, W. Harris, W. Channon, W. Carr, W. A. Cook, and H. Scott. An excellent programme of speeches and music was conducted.

The Gipsy Moth in America.

The American horticultural and rural journals have kept us well informed as to the Gipsy moth plague in Massachusetts; and we learn from "The World To-day"—which from its title is not "rural"—that over £200,000 will be expended in combating the gipsy and brown-tail moths in that State during the



The late Mr. S. H. Edwards.

next two years. A commission has been at work for some time. Hundreds of men, it is said, are told off to kill the moths wherever found. This is the only method so far successful. Arsenical sprayings are also practised, and it is said that in badly infected districts the stench from the caterpillars which drop dead from the leaves has frequently been so great as to necessitate disinfecting with lime before the bodies could be shovelled up and carted away in wheel-barrows.

Examinations for Gardeners.

At the request of the L.C.C. Parks Department in 1905 the Royal Horticultural Society consented to establish an annual examination, to be held in January of each year, open to all gardeners and under gardeners employed in any of the public parks and gardens of Great Britain. At the first examination, held in January, 1906, there were ninety entries. Only six of the entrants passed in the first class, eleven in the second, and twenty-six in the third, leaving forty-seven unclassified. The examiners commented on the absence of observation and thought. In January, 1907, only sixty entered their names, but the examiners were able to report that "a definite improvement is perceptible both in the accuracy and in the manner of expression in the written answers. The same advance was found in the viva voce section, but there still remains a vast field for

**Euphorbia palustris.**

improvement." On this occasion three gained a first class, seventeen a second, thirty-one a third, and only nine failed altogether. The third of these examinations was held on January 13, when 113 entered, and although the class list cannot be out for some weeks, the examiners have already reported that the improvement which has taken place in the viva voce part of the examination is very remarkable, and gives promise of a similar improvement, they hope, in the written part also. The expense involved by these examinations is only partially covered by the entrance fees. The society has incurred a loss of £85 on the three years, and in view of the benefits which must accrue to all public parks and gardens hereby, it is hoped that some way may be found by which the society may be relieved in future from this loss.

Kew Alterations.

The Royal Gardens at Kew are in their dullest condition at this period of the year. The chief show house, of course, is No. 4, the greenhouse; but owing to the foggy and sunless weather, the display is less striking for the time being. There is practically no show in the orchid houses, though several smaller things are in flower. The contents of the Nepenthes house are in No. 10, the Victoria regia house. The Nepenthes are, of course, hung up, while the dwarf-growing plants that adorn the rockery in that house are temporarily bedded among leaf mould in the bottom of the Victoria tank, the water being withdrawn during winter. We have previously referred to the alterations at the west end of the herbaceous ground. The long transverse path that cuts through to the Mound has been curved round, and now joins up to the Rose-pergola path, whose course bears straight through to the Mound, instead of turning downward by the rockery steps. Thus the bank of shrubs is continuous between the Mound and the herbaceous plant ground, and the Rose pergola has been lengthened, and is straight from end to end. Then certain rather extensive alterations have been completed around the American Garden, westward of the Palm house. It will be remembered by Old Kewites and others that the Pagoda Vista and Sion Vista had each a broad gravel path outward from the American Garden for a distance of sixty to eighty paces, whence they met the cross-path, and beyond that was the wide smooth sward. These two paths have been abolished, and are turfed over. Thus both vistas have the grass close up to the inner circular walk of the American Garden. But two other gravel paths have been made; one near the Lily house toward the Azalea Garden; the other a direct conductor to King William's temple and the mound there. Some good-sized trees have been planted to carry out the avenue, or vista design. We cannot say that we like these alterations, or that they were justified; but we may come to like them.

Hardy Plant Notes.

Euphorbia palustris

In the issue of January 16 we illustrated and commented upon one of the dwarf-growing, hardy herbaceous perennial *Euphorbias*, namely, *E. epithymoides*. To-day we figure another and similar species, *E. palustris*, which is of a more open, erect, and taller habit. Its herbaceous stems reach 18 in to 3 ft high, and are crowned with terminal clusters of the rich golden flowers. These appear at the same season as those of *E. epithymoides*, namely, from March until May, according to the season. This plant is found in parts of southern Britain, and is distributed throughout several European countries, but is worthy of inclusion in flower borders.—D.

The Mount Ciengialti Fleur-de-Lis (*Iris Ciengialti*).

An *Iris* garden could be easily formed, and for a prolonged season it would be of the greatest interest to its owner and his friends. A long article, however, would be required to treat of such a charming topic as that of an *Iris* garden, and we must perforce limit our notes for the present to one member of this exquisite family and its progeny. At present, then, we may speak about the Mount Ciengialti Fleur-de-Lis, *Iris Ciengialti*, a charming little plant, which may be applied to several purposes in our gardens, to their great gain in many ways. This *Iris* is one of these charming dwarf forms which are such exquisite things for edgings to borders, for the front rows of the same, or for planting in the rock or wall gardens, or even on the roof.

It is quite hardy with us, and one can plant it with satisfaction in even the driest quarters, its leading objections, indeed, being to excessive moisture and absence of sun. For the bog garden it is out of place, and in shade, save in a very warm and dry part of the British Isles, it is useless. As it can be planted in spring, those who wish to purchase it can plant it now with perfect safety; while it is far from being at an exorbitant price. The typical *I. Ciengialti* is a pretty little plant, nominally growing some 6 in high, but proving frequently rather taller. It has leaves which are about 6 in or a little more in length, and about half-an-inch broad. From these rise the stems, which are about the same length, each spathe generally yielding two bright lilac or bluish flowers, with a bright yellow beard. As a rockery plant it is almost perfection in all its ways.

There are in existence several natural or seedling varieties of this pretty *Iris*, and some of these are worth securing, although the greater height of some is against them for certain purposes, but possibly rendering them of more value for others. One pretty one, called *altissima*, is in the hands of the trade. This is about 18 in high, and has rather paler flowers than those of the type. *Loppio* is the name of another beautiful variety, the flowers of this being of a beautiful blue, and quite delicious in its perfume. *Sarah* is the name of another beautiful daughter of the type, the flowers in this instance being of an almost pearly white. All of these bloom about May. From the union of this species and *I. balkana* several hybrids, named *Balceng*, have been secured, but these may be referred to again.

The Alpine Poppy.

It is not at all surprising to find that Poppies continue to grow in favour among all who like lightness and elegance among flowers, as well as among those who admire the great, massive blooms of some of the race. Some of the Poppies, annual, biennial, and perennial, are almost of perfect beauty, foliage, growth, and flower alike combining to afford a picture of the greatest charm. The flowers of many are delightfully "crinkled," and their grace is of the highest degree. Fugacious they may be, but they are, withal, in the highest order of floral beauty. Among the prettiest of all the Poppy race, and among the least known, also, are the varieties of the Alpine Poppy, *Papaver alpinum*, dainty little plants in leaf and in flower, which either near the front of the border or on the rockery are simply exquisite. The glaucous leaves are of a pretty blue-green; the leaves are beautifully divided, and above the whole are the miniature flowers, like those of a baby Iceland Poppy in form and in colouring. The plants are only some 9 in high at the most, and in poor soil are less; they are true fairy-like plants indeed. The typical colour of the Alpine Poppy is yellow it would appear, but, like others of the Poppy race, it is very sportive in its colouring, and from a mixed packet of seeds we can have colours of various shades of white, yellow, rose, orange-red, and orange, all of exquisite beauty and almost translucent. Then recent years have gifted us a new race, called the *laciniatum* strain, whose flowers are beautifully fringed or fluted, with a great variety of colours.—S. ARNOTT.

Public Parks and Gardens.

Transplanting Shrubs.

During the winter months this operation is found to be necessary, either because of the removal of some of the shrubs to other parks or gardens, or that the shrubbery requires thinning out. To avoid mishap to the plants that are to be moved there are several conditions to be considered. The soil being then very cold, planting should not be done during the months of December and January. However, it is carried out in some of our public parks, as it is found to interfere with, and delay, other work; but the work should be pushed on during October and November. In places where the plants are able to be lifted with large balls, it does not matter so much.

For small shrubs weighing up to 2 cwt or 3 cwt., it is the general way to place a rolled mat, or two thicknesses of sacking, with a spliced rope at each side under the ball, which is then turned over on its side, the rolled end of the mat being pulled through, and the plant is removed to the place it is to occupy. If the shrub is a rare one, and there would be a risk of the ball breaking, the mat is best cut, leaving that portion under the ball. Sufficient care is very often not given to the transplanting of evergreens, and the consequent failures are very marked. The Box is one of the commoner ones which suffer in this respect. *Choisya ternata* and *Cotoneaster microphylla* are perhaps the worst offenders. To be successful it is necessary to take such with a large ball, using canvas and ropes, placing strips of board between these to prevent the ropes, which are afterwards tightened up, from cutting into the ball. Two stout pieces of board should be put well under the ball, one at the back and the other at the front. Two ropes, one on each side, should be twisted round the ends of each of the lifting boards, the plant can then be lifted out bodily, or if heavy, an incline must be made and the plant removed by levers and rollers, or by a plant machine.

Situations in London.

In reply to "A. M.," for the Royal parks, application should be made to the Superintendents. The general scale of wages is 27s. per week. Applicants who prefer to serve under glass should apply to Superintendent of Hyde Park, where there are a large number of houses. For the parks under the control of the London County Council, apply for forms to Lt.-Col. Sexby, Chief Officer, Parks Department, 11, Regents Street, London, W. Candidates are taken on temporarily, which service may be broken, but this very often depends upon the man's abilities. In this capacity gardeners are paid by the hour (6d. per hour). To become a gardener on the regular staff a candidate must pass the R.H.S. examination in park work. A third class certificate will qualify him for this, and for wages, 28s. weekly. Should he succeed in getting a first or second class certificate he will not only be entitled to rise by 1s. annual increments to 30s., but will also be placed on the promotion list. The opportunities to work under glass are not so frequent as in the Royal Parks, and new members are required to serve some considerable time outside. As a rule they have little choice in the appointment to a park, but a gardener may ask for a transfer to another park if he does not like the one he has been appointed to, whether a choice of a few has been given him or not.

Gardening in Public Parks.

Apart from the sanitary and educational point of view, the floral embellishment of our parks affords pleasure to all classes of society. The jaded worker, who finds he has a few moments to spare to visit some park, is afforded some relief from his business worries. Such visits cultivate a love of flowers among those who do not possess a garden of their own, and infuses greater interest in the newer phases of gardening in those who are more fortunate. The formal style, which has held sway for a long period, is gradually giving place to the more natural system of adornment. This is more noticeable during the spring months. Still, the summer bedding seen in some of the London parks during the past season shows what can be done to produce, by judicious arrangement, an artistic effect. The freer use of ornamental grasses, and of plants of a graceful habit, have tended to bring carpet bedding in disfavour. Another old-fashioned style, the manner in which shrubs are made to appear like drumheads, should also come under the ban. The introduction of rare kinds of shrubs needs to be encouraged. The planting of Poplars, Willows, Laurel, Privet, Sycamore, has been very much overdone. Such mistakes should profit those who are making, or taking over, new gardens. The study of soils and the retention of their fertility is very neces-



A Successful Crop of Melons.

sary where other conditions are wanting in crowded towns. It has been said that coniferous trees have been too freely planted in many private establishments. This cannot be said of those under public control. Indeed, conifers might be increased in some of the parks in country towns. The public know little of their nomenclature, it is therefore very important that the labelling of conifers, as others, should be correctly and carefully done.—A. J. HARTLESS.

Melons.

A good crop of Melons cheers the heart of every gardener, and given the crop, he next hankers after the best flavour. Of course, in attaining this he is largely aided by the varieties he chooses to cultivate. Culture and a strain noted for high flavour affords the ideal fruit. The variety which is figured above is Sutton's A1, and the crop was grown at King's Walden Bury, Hitchin, by Mr. Hartless. This is a superb Melon, obtained from a cross between Sutton's Invincible and High Cross Hybrid. Fruits large, globular, and densely netted. Flesh thick, of a rich scarlet colour, and the delicious aroma indicates that it is as good as it looks. The vigorous plant has been entirely free from canker when grown beside other sorts that were severely attacked. It does well in frames. A first-class certificate was awarded it by the R.H.S.

The Art of Pruning.

From time immemorial the art of pruning fruit trees has had a peculiar fascination for all who have taken an interest in fruit growing. Many of the learned ancients studied the matter closely, but do not appear to have formulated any definite method of procedure. In regard to the latter point the ancients were probably wise, for although during recent years many attempts have been made to reduce pruning to an exact science, it cannot truthfully be said that these attempts have been crowned with success. Why, simply because pruning is an art rather than a science; it cannot be reduced to a cut-and-dried or cast-iron system, equally applicable to all circumstances. The individuality of trees has to be considered, and although certain principles may rightly guide the pruner, he (or she) must to a great extent rely upon experience and judgment to produce the desired results.

During present days everyone is taught to think for themselves, and it is useless to lay down hard-and-fast rules, and say to the pruner, Unless you prune an Apple or a Pear tree in such and such a way it is badly pruned, and you cannot possibly get good results. The reason why it is useless to make such emphatic statements is that the observant man may often see trees treated on diametrically opposed lines, and yet each give equally good results. Seeing, then, that similar results may be obtained by totally different methods, it is not surprising that many different systems of pruning are in vogue, or that the uninitiated find the matter so complicated that they are at a

loss to understand whose advice they should follow from among the multitudes of counsellors. To such I would say, Do not attempt to follow the instructions of half-a-dozen advisers at the same time, but study the system which seems to suit your own requirements the best, stick to that system for a time, then experience and observation will teach modification you may with advantage make.

We have in Britain to-day the hard pruners, the moderate pruners, the extensive pruners, and the non-pruners, and each can justly claim under certain circumstances to have produced highly satisfactory results. Again, in regard to newly-planted trees, we have those who would prune hard the first year, and those who would leave the leading shoots unshortened, and then cut them hard back the following year.

Let me then deal with newly-planted trees first. If these are planted during the autumn on land well prepared (as it should be) wait till the buds are swelling in spring and then cut back every leading shoot to within 4 in or 8 in of the base of the young wood. In the spring when the buds are swelling it is easy to distinguish the strong from the weak buds, and a strong one pointing outward should be selected to cut back to. Side shoots not required to form a main branch should be cut back to within one or two buds of their base. The result of this treatment is that during the summer strong or moderately strong shoots will be produced to form additional branches, and lay the foundation of the future tree. When trees are planted during February or early March it is a matter for consideration whether or not the leaders shall be shortened the first year. In rich thoroughly worked garden soils it may generally be done with advantage, provided the shortening is deferred till April when the upper buds have burst into growth. The stored sap in the trees has by that time started a free circulation, and the cut back shoots break better and stronger than if pruned earlier. When dealing with spring planted trees on somewhat poor land, such as one often has to deal with when planting for commercial purposes, it is sometimes wise to defer shortening till the following year, because (especially if the season proves a hot one) only poor growth is made, and as such growth has to be cut back very hard the following year no advantage is gained, as the trees unpruned the first year would overtake the pruned ones. This is essentially a case where the exercise of judgment is required. The cultivator must know his land and his trees; if the latter are young with clean growths and plenty of fibrous roots, they will make far better growth than trees which have remained too long in a nursery and are in consequence stunted.

As long as good growth can be obtained after shortening the advantages are all in favour of doing this the first year. Now let us consider the views of those who are opposed, under any circumstances, to shortening the first year, but advocate instead cutting hard back the following year. I have practised both systems, and the general result is that deferring the cutting back causes the trees to make exceptionally strong growths, which do not break well the next year unless pruned very hard again. Now, undue vigour in a young tree should, if possible, be avoided, as it only makes root-pruning necessary, and a year or two is lost in getting the tree to settle down to the production of fairly strong yet short-jointed wood. With properly prepared soil there is no difficulty in getting trees to grow strongly enough the first few years after planting. The difficulty lies in preventing them from making gross growth; why, then, increase the difficulty by non-shortening the first year, and hard shortening the next?

In connection with young trees there is, however, a third method which all good cultivators condemn, but which would-be fruit growers too often practise. I refer to non-shortening either during the first or second year. Trees are planted and left severely alone, blossom buds form along the whole length of the young wood, the following year the branches are often roped with fruit which brings them into a pendulous position, the fruit is not thinned, the trees become stunted, make very little growth for years, and never shapely wide-spreading specimens; on the other hand, if fruit is not produced the second year a few shoots start into growth from the upper part of the branches, and tall thinly branched trees with bare limbs at the base show the result of early neglect. "Skeletons" of this type are plentiful in old orchards.—H. D.

(To be continued.)

Kew Bulletin.

The first Kew "Bulletin of Miscellaneous Information" for 1908 has come to hand. The contents are in six sections or chapters, treating of exotic fungi (collected in Singapore Botanic Garden) by Mr. Massee; the fruit or Orange fly, which has seriously damaged the fruit crop in Western Australia; new plants sent to the herbarium; on Australian grasses; on the prickly-fruited *Enonymuses*; on *Yeheb* (*Cordeauxia edulis*), a new nut-bearing plant from Somaliland; and lastly, miscellaneous notes—making an interesting and highly useful booklet. The cost is threepence, through any bookseller.

Notices of Books.

ROSES, THEIR HISTORY, DEVELOPMENT, AND CULTIVATION; by the Rev. Joseph H. Pemberton; with coloured frontispiece, nine lithographic plates, and other illustrations in the text. Longmans, Green and Co., 39, Paternoster Row, London; 1908. Price 10s. 6d. net.

Here we have just such a book as we enjoy reviewing, because one has every confidence in one's author, who was born in an atmosphere of Roses, who has exhibited show blooms with success for thirty-two summers, and who was one of the first to appreciate the decorative worth and beauty of "garden" Roses. Mr. Pemberton is a vice-president of the National Rose Society, and we have always regarded him as one of its ablest supporters and advisers.

The book before us, then, is a masterpiece of care. It is an epitome of the history and development of the Rose, more particularly of the development of those grand English and Irish raised Roses, and of the introduction and new appreciation of decorative kinds. Mr. Pemberton has the more recent literature of the Rose at his fingers' ends; he has had a lifetime's experience of Rose cultivation, has met or known the English masters of the cult, and has seen the gradual building-up of the National Rose Society, its constitution, exhibition schedule, investigations, and publications. He won second prize for twelve Roses at its first show in St. James's Hall, against forty competitors! And at South Kensington many years ago he exhibited a collection of "Grandmother's Roses," and so gave a decided impetus to the raising of decorative Roses.

So much for the author; what of the book? As we have said, it is carefully prepared. Books on Roses have been numerous lately, as a matter of course, considering the present situation; but we feel certain that this book will meet with the warmest welcome. It deserves it.

There are two Parts: the first covering the botanical and floricultural studies; the other the cultivation practices. This is a simple and nice arrangement. In all there are eighteen chapters. First of all the species are described, and we observe that Great Britain is credited with sixteen. We believe Baker reduced the number to five, but it is as Mr. Pemberton says, "From the study of authorities, the botanical classification of the genus *Rosa* seems to present as much difference of opinion to the botanists as that of the cultivated interbred Rose does to the ordinary Rose growers." However, he follows Crepin's classification. The figures of species that appear are from such varied sources as Redouté's "Les Roses," H. C. Andrews' "Monograph," Sowerby's Botany, and Lindley's "Rosa Monographia." Each species is treated to a sub-chapter, the authority for the name, its date of introduction to cultivation, and native habitats or country being stated at the beginning of the paragraphs. Following the species come the hybrids, and this is probably the most interesting to the average grower. The author takes us back in mind to the year 1820, and traces the condition of the Rose world then, furnishing, as he descends, lists of the kinds then and subsequently in favour. This, together with the many other able chapters, makes the book authoritative and endows it with the character of a reference manual. A descriptive list of selected Roses recommended for cultivation forms an appendix.

Well, we would like to go much more deeply into the contents of this latest Rose book, but lack of space and time, as usual, compel a halt. Messrs. Alex. Dickson prepared the chapter on hybridisation; Dr. Cooke the chapter on pests; and acknowledgment is made for extracts from Dr. Eram's "The Soil and its Management," and Dr. Griffiths' "Manures and their Uses"; also to the Rose conference (R.H.S.) report, to the Kew herbarium, and to Mr. Thomas Rivers and Mr. William Paul's works.

Autumn Crocuses.

From their paucity in gardens one must conclude that the autumn flowering species of Crocuses are either not well known, or are not wanted. We do not think they are not wanted; but perhaps they are too expensive (are they?) to be worth planting in masses. Our photograph of the pretty white Crocus—*C. sativus* *Elvesi* *albus*—was taken at Kew in November. A few weeks ago we also figured another similar bed of autumn Crocuses, the species then (page 536, December 3, 1907) being *asturicus*, with lavender-blue flowers. Little round beds of these Crocuses exist at Kew under the Rose arches on the southern side of the Iris garden near No. 2 (*Monocotyledons*) museum. They are very bright and cheerful in the dull November days, especially on days when there is sunshine.—S. E.

Entomological Notes.

Adventurous Winter Insects.

When there occurs in winter one of those mild periods which are not very uncommon, the unexpected appearances of certain insects supply matter for the Press at a dull season. Newspapers record the premature blossoming of fruit trees, the early opening of wild flowers, and sometimes the coming forth of butterflies, when we seldom see them on the wing. One of the "children of the sun" seems out of season in winter, but its appearance is not always to be ascribed to a transient gleam of sunshine, or to mild weather. There is one group of butterflies in which both sexes hibernate, emerging during the spring to produce a new brood. Their places of concealment are various. The common tortoiseshell (*Vanessa Urticae*) occasionally enters dwelling houses, and rests in one of the upper rooms, to be disturbed perhaps by cleaning operations, or extra fires about Christmas, and a specimen may flutter out to the open air, probably to be snapped up by a bird.

Other tortoiseshell butterflies, red admirals (*V. Atalanta*) and peacocks (*V. Io*) get into woodstacks or haystacks having hollows, there to abide the cold months. These, too, are liable to be roughly disturbed in the course of the winter. It is likely some may come forth by choice on a bright day; certainly the brimstone butterfly not unfrequently takes an excursion early in the year, returning to winter quarters, if it escapes birds and entomologists.

We have, however, a goodish number of British moths, to which some winter month is the customary season of emergence. Probably few of them are on the wing more than a few days, but they must undergo many perils from the weather and enemies, chiefly birds. Some are in more danger than others, and by a wise provision of Nature, to guard against the destruction of a brood, several species have the chrysalis stage prolonged, sometimes, through two, three, or even four years. But the winter moth (*Cheimatobia brumata*) naturally comes first to our thoughts, as a common and a hardy species. Abundant in gardens and orchards, we see it also about the lanes and woods, in fact everywhere. There seems to be a succession of these moths, the wingless females placing the eggs on the trunks and branches of trees, also on shrubs. Some are often found at the end of October; plenty in November and December. It is too late to seek the moths now, but patches of the greenish eggs may be destroyed. The little females are mere egg-bags, wingless; yet they are alert, and if alarmed, drop seemingly dead, or run to hide themselves. It is likely from their dull colour they escape the notice of birds. The tiny caterpillars begin life early in April, when they attack the expanding buds. Nearly related to this species is the moth with the significant name of *Hybernia defoliaria*, or the mottled umber. It is rather a pretty insect, and generally takes its flight in November. The caterpillar is also brightly coloured, and in full activity during May and June, when thousands are often seen on the trees of woods and copses.

All the *Hybernias* have the females either wingless, or with only fragments of wings, a fact which has caused some speculation. *H. ruficaparis* has been called the "early moth," and it seems to defy the coldest weather of January. It is a dull-looking moth, the brown wings being streaked with darker brown. The caterpillars, too, are out soon, and may be seen wandering upon the twigs, waiting for the foliage to expand in April. Another species has received the name of the spring usher (*H. leucophaea*), because it appears in February or March; but if it is a pioneer of spring, we often have to wait a good while after we see the moth. When the caterpillar is hatched in May, it tries to conceal itself from the sharp eyes of birds by drawing together some of the young leaves. In the North and West of England, the pale brindled beauty

(*Phigalia pilosavia*) flies during February, but it is rare near London. The body is well protected by thick hairs. But the little brindled beauty moth is found about the South, in Richmond Park for instance.

Then we have, in quite a different family, a moderate-sized and stout-bodied moth, *Ercogaster lanestris*, also called the small egger, from the egg-like shape of the cocoon. This is near of kin to the December moth, recently described in these pages, but its particular season is February. This is also one of the notable species that occasionally has a sleep prolonged through several years. Both sexes have the body hairy. In the female insect, there is a quantity of silky hair, which is stripped off by her as a covering for the eggs. About May the caterpillars live in swarms upon Plum and Hawthorn, being of gregarious habit. They are almost black, red spotted, and slightly hairy.

Glancing round the insect world, we might reasonably suppose that beetles, mostly cased in body armour, can stand the cold better than many species of other tribes. As a matter of fact we seldom see beetles in the winter months, though they are amongst the early insects greeting spring. Still, on a mild day we may notice some ground predating beetles travelling along the earth, brought up by the soil being disturbed, or the mildness sending them in search of such grubs and larvae as are crawling amongst low herbage. These are the gardeners' friends, not foes, barring the few species that have shown themselves malicious towards Strawberries. A rather common species

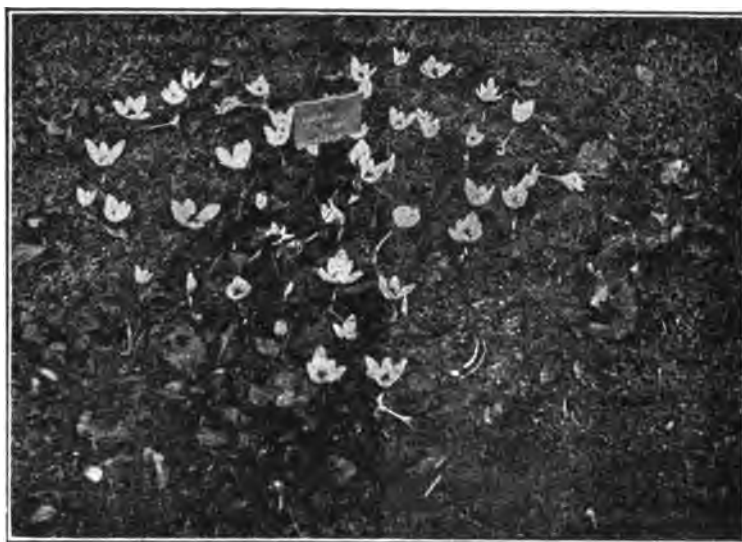
is *Cavabius vinolaceus*, apparently a black insect, but in fact of a deep violet hue, the surface granulated, and it is furnished with very strong legs. Several of the ground beetles are so nearly the colour of earth that they escape notice; probably they are thus helped to seize their prey. We may come upon the beetle endowed with the Latin name of *Sphodrus leucopthalmus*, of pitchy black hue, having a smooth head, slightly marked. He is plodding along the garden walk; perhaps appears in a frame or a house; but he is not to be crushed, if possible, since he is a useful insect. He seeks the objectionable species partial to shady places, and particularly likes the cockroach.

Sombre beetles seem to suit the average dullness of winter days.

Hunger may bring forth a specimen of the devil's coach-horse (*Ocyopus ulens*) pausing on the defensive now and then, with expanded jaws, and uplifted tail; and it can eject an unpleasant smelling fluid too. Not at all particular is this beetle as to food; it will eat decaying substances, and live insects, or even seize worms and young frogs. Another darkling beetle has the ominous name of "churchyard" or *Blapa mortisaga*, and when seen crawling at this season is seldom about voluntarily, but has been disturbed in some underground haunt, and is seeking a new hiding place. It has certainly been found in churchyards, though there is no proof it feeds upon the dead. The usual food is various insects which haunt cellars and vaults.

Earwigs are insects fond of warmth, and of shy habits, so we do not look for them in winter. Stragglers, however, appear now and then about dwelling houses; also in conservatories and hothouses, the heat and moisture of the latter proving an attraction to them. Winter earwigs generally vanish from view speedily, unless killed, wherever they may turn up. They are not lively enough to exhibit activity in attacking plants. It is something in favour of a very annoying pest, that earwigs do occasionally prey upon other insects. Then the odious cockroach is an all-year-round insect, difficult to eradicate, and rather fond of sending its emigrants from house to conservatories, where, lying hidden by day, it emerges to devour shoots and young leaves at night.

People ask sometimes, "What becomes of all the house flies in winter?" Well, those that are not killed by enraged humanity, or eaten by enemies, generally die of a complaint called "muscodine," manifested by a white fungus which spreads over the fly's body. Some, however, hibernate in



Autumn-flowering Crocuses.

sheds and barns, also in dwelling houses, emerging occasionally when the weather is mild. Last December I had a couple of flies that appeared now and then for several weeks. Both generally appeared at meal times, coming to butter or sugar, or anything savoury that was on the table. We are not sure whether the new brood depends entirely or only partially upon the survival of flies from the autumn.

Mysterious in their appearances are the gnats or midges which disport themselves on some winter days, mostly mild ones, yet not always. Some people assert they are signs of fine weather; others think just the reverse. It is certain they are often on the wing after rain and before sunset.—ENTOMOLOGIST.

The Franco-British Exhibition.

Preliminary View.

On Saturday forenoon I paid a visit to the grounds of the Franco-British Exhibition, which will be opened in May at Shepherd's Bush, London. When nearing the exhibition grounds one was made painfully aware of the fact that the heavy traffic of carts and lorries for the past year and a half had told heavily on the road. Travelling in one of the motor omnibuses at present is hardly bearable, and so jolty was part of the

Plots of grass are, of course, plentiful and borders and beds of flowers will doubtless appear in due course. We are only in January yet; and a very great deal has still to be done.

It may be said that all the main avenues are mapped out, and have their bordering of trees, the bases of whose stems are wisely bound round with hay bands. This protects the bark from bruises; and with so many men at work, and so much material constantly being hauled about, the trees might easily be injured. The soil is mainly a stiff yellow clay, and the planting operations must needs have been carefully done to ensure success.

I was more than surprised that no real attempt had been made to lay strong main roads. This ought certainly to have been the very first undertaking; but on Saturday, after the dampness and the fogs, the grounds were a quagmire, and one observed the poor horses hard set to, to drag even an empty cart through the deep and clinging, pasty soil.

The most pleasing feature to me was the canals and the water-basins, some 10ft deep, the canals planned to form a square and having basins or lakelets at two sides, east and west. The canals are spanned at intervals by elegant one-arch iron bridges, having an 8in overcoating of sifted cinders and cement. Over this, of course, there will be asphalt or cement. The steep banks of the canals, above the coping, are covered with turf.



Copyright]

Polyanthuses Naturalised. (See p. 107.)

[Sutton & Sons,

journey from Hammersmith, that some of the passengers preferred to stand up inside the 'bus.

Arriving at the clerk of works' entrance, I thought I would have no difficulty to enter upon showing my business card, and that proved correct, the card being signed at the office, and myself furnished with a plan of the grounds and the buildings. At the same time, it is best to be qualified beforehand with a pass, which may be obtained upon application at the Exhibition Offices, 56, Victoria Street, S.W.

Of course, my object was to see the progress of the tree-planting and of the laying-out. Mr. J. Jaques, lately gardener at Waddesden, has charge of the ground operations, and as I had heard that he had been hunting all over the country for big trees (with 6in stems), this fact alone whetted my curiosity to go and see. Well, there are large numbers of trees certainly, but amid the innumerable huge buildings they do not make a great show, since they are leafless and bare. Provided they break into growth and leaf, however, the avenues of Poplars, Sycamores, Acers, Limes, and Planes will assuredly have a distinctly beneficial and softening effect by the leafy month of June. Yes, there are really big trees, whose stems will measure 6in through at the base, and they reach, I suppose, 40ft in height. These appeared to be black Poplars, and are planted near the central grounds—between the Stadium and the machinery halls. Many of the other trees are 20ft to 30ft high.

These waterways and basins are already well advanced, and indeed the outlook is very promising. Already the roads are being prepared in places, and with a good body of labourers and nice open weather, a large part of the grounds could quickly be finished off.

The buildings are very ornate. The framework is in steel and iron, the interstices being filled with cinder-cement tablets, or squares, over which there is a thick coating of plaster.

The Stadium for the Olympic games is a huge oval enclosure, the centre being of grass, with a 16ft cinder track around it. The ends of the oval are banked up; and there is a huge tank for aquatic carnivals upon one of the sides. An immense stand made of wrought iron and cement encircles the Stadium, the height at the bank being 50ft to 60ft. Such an immense structure will afford seating for many thousands. Part of it is covered in.

The largest open space in the grounds, except that of the Stadium, is set apart for the agricultural and horticultural shows. These, we presume, have yet to be arranged. The ground I refer to is marked 107 on the plan, and is an irregular four-sided area at the N.N.E. corner. It is contiguous to the new Great Western Railway Station, which is within the exhibition grounds. There will be no fewer than ten railway stations supplying the grounds, which are 144 acres in extent, and five stations will be within their area.—J. H.



A Bushey Park Chestnut.

One of the largest trees in the famous Chestnut avenue in Bushey Park was cut down last week as, owing to its decayed condition, it was not considered safe. The tree was over 200 years old, and was about 100ft in height and 30ft in girth at the thickest part.

The Yellow Munstead Polyanthuses.

By the courtesy of Messrs. Sutton and Sons, Reading, we are enabled to reproduce a photograph of what they term the Munstead Polyanthuses, growing, we believe, in Miss Jekyll's charming woodland garden. Here they are naturalised by the thousand, and produce quite a glorious display. Of them they say in their catalogue: "We have pleasure in offering seed of this magnificent strain of Bunch Primroses or Polyanthus, which has been brought to such a high state of perfection in Miss Jekyll's garden at Munstead. Although the flowers are of the largest size, they are free from any suggestion of coarseness, and show wonderful shades of yellow, ranging from the palest silver to rich orange-brown, as well as pure white flowers eyed with pale primrose and bright lemon, or with more striking orange centres."

The Mistletoe in Mythology.

The Mistletoe has an evil name in Scandinavian mythology, writes Prof. Ray Lankester in the "Daily Telegraph." Baldur, the beautiful, the Sun-god, was made, like Achilles, invulnerable to spears and arrows cut from whatever tree grows on earth. All things had taken an oath not to hurt him, and the gods of Walhalla amused themselves by throwing all sorts of darts and clubs at him—none could hurt him. At last the blind god Höder, who loved the beautiful Baldur none the less because he himself was weakly and sightless, also ventured to throw a dart at his invulnerable friend. It sped home, pierced Baldur's heart, and killed him. The dart was made of Mistletoe, a tree that does not grow on earth, but lives as a parasite high up on other trees, and had taken no oath to spare Baldur. It had been put into the blind god's hand in a friendly helpful sort of way by a designing female, who was really the evil spirit Loki in disguise. What is the allegory? Does the Mistletoe dart stand for calumny? Is the Mistletoe associated with calumny because it is a parasite in high places? If one must choose between the Mistletoe myth of Norseman and Briton—the latter, which survives in the power accorded to the Mistletoe to license, even to command, by its mere overhead existence the giving and taking of unexpected kisses and of expected ones, too, is certainly the more cheerful and suitable to the hopeful enterprise of New Year.

The Seedless Lemon.

The arrival of the much-lauded seedless Lemons in London from California attracted considerable attention, and the fruits (says "The Standard") were rapidly disposed of at fancy values. Nevertheless, the seedless Lemons did not attract crowds as did the arrival of the famous Spencer seedless Apples, which reached London a few years ago, and the representatives of the Italian and Spanish Lemon shippers and others interested in the sale of Lemons of the old type are not afraid of the competition. Though the new fruits are pretty, juicy, and of fine flavour, yet they are higher priced than the ordinary Lemons, and probably will always continue so, on account of the long journey they have to make before reaching the British markets. Further, the advantage of seedlessness does not apply in the case of the Lemon as it does in the Apple, because most Lemons sold are not eaten whole as Apples are, the juice chiefly being expressed for culinary and drinking purposes. Still, it is certain that next season very extensive shipments of these seedless Lemons will be made to the United Kingdom, and, as fruiterers

point out, there is always a large section of the public who are ever ready to pay fancy prices for novelties in the fruit line. It has cost the American officials thousands of pounds and several years' persistent and anxious labour to bring the seedless Lemon to perfection. The American Government, in the interests of the country's farmers and fruit growers, have for some years had these specialists at work on the improvement of fruits, or the production of new varieties, from a commercial standpoint. The seedless Lemon is one of their greatest successes.

Zones of Vegetation, and Migration.

An experiment in field botany, which has been in progress some three or four years, and which has been noted in the "Morning Post," is reviewed in general terms by its director, Professor F. W. Oliver, F.R.S., in the "Transactions of the South-Eastern Union of Scientific Societies." The experiment took the form of selecting an area of salt-marsh at Erquy, in Brittany, for observation over a term of years, and of noting on this area, for example, the distribution of zones of vegetation; the physical characters of the soil, its salinity, and the plants appropriate to such conditions; the migration of the plants; why some spots are always bare; and so on. It is impossible in the space of a note to summarise all the points of scientific inquiry extending over a quadruple investigation. Suffice it to say that the investigations have been conducted by a party of from twenty to twenty-five students, past and present, of University College, reinforced by specialists drawn from outside, with about ten students new to the work in each succeeding year. Brittany, we may surmise, was chosen partly because of its cheapness, and partly because a party of students similarly engaged in England is apt to be regarded as a species of poachers by the aborigines. The experiment, apart from its scientific value, is interesting as affording an example of the new spirit pervading scientific research. In science the day of the isolated worker is passing away, and in its place is springing up an impulse not unlike that which in mediæval times joined architects, sculptors, painters, and all sorts of skilled artificers to erect and beautify some noble building, to which each brought the best of which he was capable. The idea of this common undertaking, by which the most enduring monuments can be raised, has yet to permeate more fully the unit organisations; but this will be accomplished with the lapse of time.

Vegetation on the Scilly Islands.

In connection with the recent cold wave I see it stated (says a writer in the "Yorkshire Daily Post") that the Scilly Isles were almost the only portion of the United Kingdom which felt no frost. It is to this immunity from extreme cold that the islands owe their semi-tropical plants, which flourish there in the open air—and notably in the famous gardens of Mr. T. A. Dorrien-Smith's residence, Trecco Abbey. There you may see Brazilian palms, hedges of "Geraniums," gigantic Verbenas, and Fuchsia trees, Aloes, and every species of plant growing freely and luxuriantly. It is not that the Scilly summer is so hot, but that the winters are so kind to any plant growth to which the temperature of 32deg Fahrenheit means death. In fact, the heat of summer and the cold of winter seem alike to be diminished by the proximity of the Gulf Stream, which here strikes our shores first on its long journey from the Mexican shore—and which carries on its bosom the hall-mark of its origin, for I have often seen at Scilly the frail purple shells, garnered in Permellin Bay, St. Mary's, whose native place were waters adjacent to the Caribbean Sea. The main danger to Scilly floral and plant life is the spray and sand borne by fierce winds from the sea and the beaches in over the island fields. That is why to see Scilly vegetation at its best you must visit cosy nooks like Holy Vale or Rocky Hill, or the well-protected gardens of Trecco Abbey. Here, in addition to the shelter afforded by the configuration of the soil, hedges of Makrantha and other hardy growths form a screen against the ocean spume and the penetrating sand. As for the Narcissi now coming into Covent Garden, they are conveyed when in the bud stage away from the perils of the fields into hothouses, where they open safely.

Statistics.

By the courtesy of the Board of Agriculture and Fisheries I have been favoured with a copy of "Agricultural Statistics, vol. xlii., part I., acreage and live stock returns of Great Britain, with summaries for the United Kingdom,"* and may refer to some matters of interest and of importance to readers of the *Journal of Horticulture*.

The land area of Great Britain we learn is, according to the latest measurements of the Ordinance Survey, 52,200,006 acres, and of this area "32,243,449 acres were under cultivation in 1907, or, in other words, were comprised in the 510,954 holdings of over one acre included in these returns. A further area of 12,742,779 acres of land was also utilised for grazing, though not reckoned as coming within farm measurements, while, according to returns collected in 1905, rather more than two and three-quarter million acres are occupied by woods and plantations. The extent of land thus accounted for is 47,754,469 acres, or about 85 per cent. of the total surface of



Photo.]

Simple Iron Gateway.

[Harrison, Dublin.]

the country. A substantial addition must be made to this, not only for the gardens attached to private houses, which make in the aggregate no small contribution to the food of the people, but also for the large number of allotments and other plots of cultivated land not exceeding one acre in extent which do not come within the scope of these Returns."

The total number of allotments (detached from cottages) not exceeding one acre in Great Britain was 455,005 in 1890, according to the special return published by the Board, and the number of "small holdings" of a quarter, but under one, acre was 28,652." In 1886, according to the return, the number of railway allotments detached or attached to cottages, garden allotments attached to cottages, Potato runs and cow runs, was 436,319. Thus there are, says the Agricultural Statistics, nearly a million plots of land below the limit of one acre not included in the agricultural area at the present time, which is a very reasonable estimate. Towns have advanced very rapidly since 1890, encroaching on the agricultural area to the extent of 500,000 acres within the last fifteen years,† according to the Right Hon. John Burns, President of the Local Government Board. It appears from the returns, made with the object of discriminating between farming as "a means of livelihood" and as an "amateur" for the first time, that the total number

of holdings included in Great Britain is 28,403, or 5.6 per cent., not farmed primarily for business, the proportion being the largest amongst the smaller holdings. Thus of holdings between one and five acres 11.4 per cent., and of holdings between five and fifty acres, 5.7 per cent. are not farmed for business. It is perhaps surprising that as many as 2,635 holdings over fifty acres should be described as not farmed for business, but, as might be expected, the greater number of these, both absolutely and proportionately, are in England. The figures are, of course, only approximate, yet may be accepted as fairly correct, and in that case indicate that "garden cities" are swallowing up agricultural land, or it is "occupied for purposes of amenity rather than of economic development."

The statistics enter fully into the size of holdings, which is confined to the "cultivated," or farmed land, and any rough grazing land which is attached to a holding is not taken into account in returning the area as holding. "Changes in Crop Areas" bring the total of arable land down to 14,964,000, a reduction of 56,000 acres. The reduction during the past thirty years has proceeded with comparatively slight yearly fluctuations, at the rate of about one million acres per decade. The area under corn crops was reduced in 1907 by 60,000 acres, a substantial increase of Oats, Beans, and Peas being more than counterbalanced by a decrease under Wheat, Barley, and Rye. Notwithstanding the reduction in the land under the plough, the total extent of arable land actually under crop was almost the same as in 1906, owing to the fact that 53,000 acres less were left as bare fallow. Consequently, although Turnips, Potatoes, Rape, and Hops were less by nearly 50,000 acres, this loss was made good by the increase of Clovers and rotation grasses, while the increase under Mangolds, Vetches, Lucerne, Cabbage, Kohl-rabi, and other crops accounted for the remaining crop areas.

Now we come to fruit crops, which are of most interest, perhaps, to *Journal of Horticulture* readers. The growing importance of fruit cultivation has received a generous share of attention by the Board of Agriculture, the detailed statistics bearing upon the industry as a whole. There is a chart showing the rise of "small fruit" from 70,000 acres in 1897, to over 80,000 acres in 1907; of orchards in 1897, 225,000 acres, to in 1907, 250,000 acres. The increase during the past ten years is 12,000 acres of small fruit, and 25,000 acres of orchard. The attempt to obtain information of the proportion of the acreage bearing small fruit that was also returned as orchards, appears to have met with some success, as the returns were given under four heads, and orchards under five headings, and also how much of the land under orchards was also returned as under small fruit, the following instructions being given in the schedule: "The acreage under mixed small fruit, containing more of one sort than another, should be entered against the sort to which the larger proportion of the fruit belongs. Where the sorts are equally mixed the entry should be made against other kinds." A similar instruction was given with regard to orchards. The acreage returned under each kind of fruit must consequently be regarded as approximate.

The following statement summarises the returns received (the details for counties being given in Tables VII. and VIII.):—

	England.	Wales.	Scotland.	Great Britain.
Small fruit.	Acres.	Acres.	Acres.	Acres.
Strawberries	23,623	780	3,424	27,827
Raspberries	6,480	20	2,378	8,878
Currants and Gooseberries	24,179	177	1,234	25,590
Other kinds	19,090	236	554	19,880
Total	73,372	1,213	7,590	82,175
Orchards.				
Apples	168,576	3,115	952	172,643
Pears	8,635	93	183	8,911
Cherries	11,952	40	35	12,027
Plums	14,571	60	270	14,901
Other kinds	40,384	363	947	41,694
Total	244,118	3,671	2,387	250,176
Acreage of small fruit in orchards	22,580	106	806	23,492
Total area under fruit	294,910	4,778	9,171	308,859

The statistics proceed: "As compared with 1906 there is an increase of 1,949 acres under small fruit, and of 2,489 acres under orchards. Many of the collectors report that the new classification led to greater accuracy in the returns both of small fruits and orchards, and it may be assumed with some degree of confidence that the total acreage devoted to fruit growing on holdings exceeding one acre in Great Britain is fairly represented by the above total of 308,859 acres.

In the tables referred to (VII. and VIII.) are given the acreage under different kinds of "small fruit," and the acreage under orchards, distinguishing the kind of fruit.

Clover and rotation grasses show a net increase of 50,215

* Messrs. Wyman and Sons, Ltd., 109, Fetter Lane, Fleet Street, London, E.C. Price 5d.

† Report of a conference on the subject of Afforestation, June 25th. 1907, p. 7.

acres. This increase was solely in the area returned as for hay, which showed an addition of 53,732 acres. This was confined to England, both Wales and Scotland recording decreases. The area not reserved for hay was increased in both England and Scotland, but in Wales there was a heavy deficit, amounting to nearly 20,000 acres.

The area under permanent grass was increased by 33,150 acres, and the total of 17,277,884 acres is again a record. In England there is a diminution of 9,364 acres, but Wales added 34,647 acres, and Scotland 7,867 acres to their totals. The breadth reserved for hay was extended by nearly 152,000 acres, England contributing over 146,000 acres, and Wales 6,363 acres, while Scotland showed a slight decrease. "The causes that induce a greater or less breadth of grass land being cut for hay or left for grazing are generally somewhat numerous, chief among them being probably the character of the weather."

Altogether the "Agricultural Statistics for 1907" furnish a mine of information that, to be fully entered into, must be

self-defence it is necessary to keep our people on British soil, and with some interest in it, we are bound to stand firm in the time of need.—G. ABBEY.

Garden Ornaments.

We turn for a moment to the subject of garden gates, not meaning to discuss the matter at length, but to consider one or two points. Gates are of many kinds, from the common and humble wicker, over which the miller's daughter talks love in the moonlight to the village beau, to the grand wrought-iron entrance gates of a ducal or princely domain. Each type has its place. For the palatial residence and extensive demesne, the details, even to gates, must be considered. But there is such a thing as over-ornamentation, and too great elaboration. Skilful design and clever craftsmanship are doubly pleasing

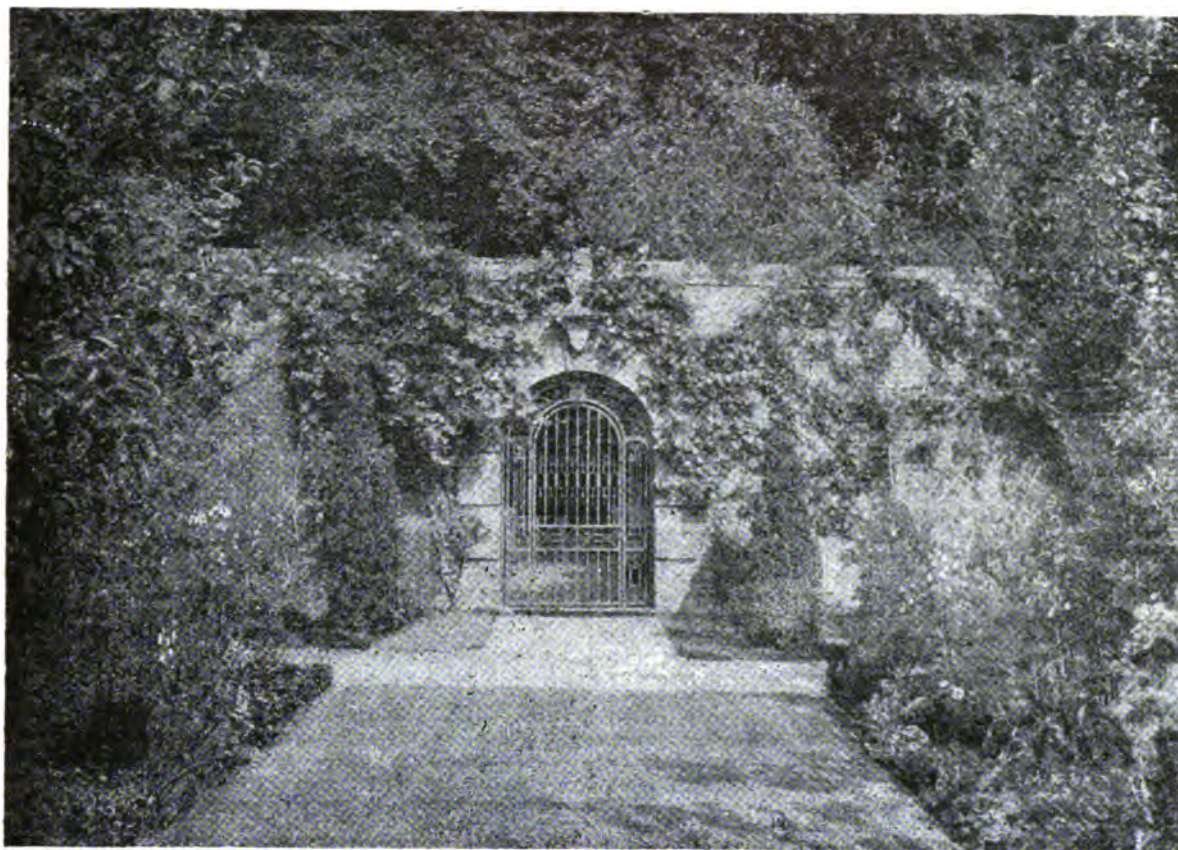


Photo.]

Garden Ornaments: An Iron Gateway.

[Lady Binning.]

possessed, and then it will be seen that the great fields for colonisation are the mountain and heath land, of which certainly one-fourth is fitted for agricultural uses on the mixed culture principle, in which "small fruit" would form no little consideration, with poultry farming on the small holdings' idea. The free air and moist conditions of these districts favour small fruit, as I have experienced in a moorland district, no finer or plentiful crops being annually produced anywhere else in the British Islands. The only drawback is facilities for marketing; but why not jam factories, even creameries, in these out-of-the-way districts? Co-operation appears the only thing needed to bring these lands, mostly utilised as sporting grounds, under the spade and plough, and much of the butter, eggs, and fowls, with even rabbits, and, above all, small fruits, Potatoes, &c., now imported be produced at home, and British soil colonised by the sons of their native land.

Three-fourths of land returned as mountain and heath may not be available for afforestation, but at least half of it certainly is, and this area afforested would facilitate the colonisation very markedly, on account of the shelter provided; and with the waste land, or such of it as suitable, utilised, if only for growing "wood pulp," there would be found work at home for thousands of the rising generation. If for no other reason than

when applied to utilitarian objects, provided they are in harmony with their surroundings. As a rule, a florid design is quite out of keeping with the placidity of a quiet garden. Perhaps a gateway leading to a blazing garden of hardy flowers and Roses might be likewise richly embellished, and be perfectly harmonious; but a similar gate that bears on through to a shady grove or wild garden, would be incongruous and out of taste. There should be no such abrupt and harsh break between the formal, or artificial, or gardenesque, and the wilder freedom of Nature unadorned.

Two elegant and beautiful gates and gateways are presented on these two pages. Nothing positively could be more in keeping with their environment. Antique and stately walls, covered with climbing plants, and closely embowered with tall trees, the treatment is quiet, pleasing, and beautiful. Endless ornamentation is a prevailing modern idea, as Mawson remarks; but these gates portray no such error. "Everything depends upon the position and importance of the walks to which the gates give access; to the style of the architecture of the residence" (or of the garden), "to which they lead." And so, for this reason, one employs wooden postern gates for the cottage, and others of varying pattern and size suited to the variety of other places in which they are employed.



Outdoor Peach Trees.

Permit me to say, as an admirer of your enthusiastic paper, and in reference to the discussions appearing periodically regarding Peach tree culture in the open air, let no one anxious to have this beautiful fruit despair. Here in the damp, salt-laden air of the Wirral Peninsula, with its light soil, we gather bushels of this beautiful fruit annually, and much superior in flavour to any I have tasted under glass, and with the simplest methods of culture, similarly to that of the Pear or Apricot. Our method consists in shallow planting, adding stiff loam and lime rubble to the compost, choosing stations against an ordinary low form of garden wall. We thin the wood well; spray and feed when the trees carry a heavy crop, as they annually do. Quite two-thirds of the fruits that set are removed; then prune and thin the shoots after the fruit is gathered. The greatest enemies to Peach culture in the open are late spring frosts and Peach leaf-curl. Nets and branches protect them against the first, and sulphide of potassium acts against the latter, providing the roots are fed. I might add that with these simple methods we usually commence gathering early in August, and continue until the October frosts compel us to pluck the Sea Eagle fruits and store them in the fruit room. I have seen the Peaches growing and fruiting well as far north as Argyllshire, and I was surprised to think that anyone should have any difficulty in growing it anywhere beyond the Midlands.—D. MACPHEE, Arrowe Hall, West Birkenhead.

Apropos the Mistletoe.

Your valued contributor, our friend Mr. Abbey, has supplied us with much curious information about a favourite and familiar parasitic plant, but we could not expect him to record all the particulars of the Mistletoe's history. Thus, though the Druids had such high regard for the plant when it could be obtained from the Oak, they held the Mistletoe of the Apple in reverence, because the Apple was regarded as a sacred fruit. This was evidently, as with us now, more easily obtainable by the Druids. It has been suggested that the priests furtively transplanted the plant from the Apple, where it grows freely, to the Oak, upon which it seldom occurs naturally. This is, however, a mere supposition. So far as I know, no modern experiments have been made in transplanting Mistletoe, but it might be done successfully, owing to the strong vitality of the plant. The late Edward Lees, a distinguished botanist, refuted the statement that a plant dies when twelve or fourteen years old. The Mistletoe is partial to Limes, and he knew trees of that species with shrubby specimens full thirty years old. A remarkable instance of longevity was a Mistletoe on an Oak in Eastnor Park, Herefordshire, which he had watched for forty years, and so very vigorous it seemed likely to double that age. He adds that the adjective "baleful," given to it by old writers, is justified by fact. After a time it injures the trees upon which it grows. But in the case of the Apple, however, Lees asserts that though the parasite tends to cause decay, for awhile it stimulates growth and increases the fruit bearing. Next to the Apple it is most partial to the Hawthorn; and the chief bird propagators of Mistletoe are the blackbird, fieldfare, and thrush. Fond of the berries, after feeding they wipe their mandibles upon the branches, and the seeds, being enveloped in slime, take root, but germinate very slowly. Mr. Abbey remarks, which is quite correct, that the Druids only associated the plant with the spring season. Our Christmas customs come from a northern source: it was sacred to Freja, or Frogga, the Scandinavian Venus.—J. R. S. O.

Pot Washing.

I am afraid Mr. D. Thornton allows his prejudice and custom to stand in the way of reform. I do not expect to convert an army of horticulturists who have seen pots washed every day since their gardening career commenced; but I hope to make a few of them think first and act afterwards. One cannot expect to move the world in a day. Your correspondent is labouring under a mistake when he supposes the pots are all placed out singly. Why! the labour entailed would work out more expensively than the pot washing. Oh, no, the pots are stacked in the ordinary way, hundreds and even thousands of casts

together. I leave the onus of proving that a plant will grow better in a pot that has been washed than one that has been weathered to Mr. Thornton, and I fear he has a difficult contract to face. It certainly sounds sentimental to compare the poor dead clay of a flower pot to the skin of a human being—one alive, the other inert. To save time and space I would remind Mr. Thornton that the old bogey of porous pots has long since been killed by the glazed pots used by Auricula growers, and also for other subjects too; in fact, they would be used more extensively than they are but for their cost. I see, too, that he is under the impression that rubbing the inside of a pot may rub in a little more dirt; but it is not so in practice, and even if it were so, what would it matter? In conclusion, my reasons for avoiding pot washing are: that it is absolutely unnecessary; that it is a gross waste of time, except in a few instances; that it is a waste of money, and that tens of thousands of plants are grown annually to the highest state of perfection without its aid; and that it is an old custom that is useless and out of date, unworthy of the twentieth century.—J. B. RIDING.

Planting Trees on the Paradise.

Bravo! Mr. Morse, you maintain your attack in a truly commendable spirit. Far be it from me to attempt to throw cold water on your efforts, or to fail to meet you in a similarly generous spirit. I enjoy a wordy battle as much as anyone (when I am not too diffident to enter the arena). I invariably learn something from friends and foes alike, and I am always ready at the conclusion to shake hands in the best of good humour. But I have not quite finished yet.

The human brain is a peculiar piece of mechanism, so fearfully and wonderfully made that every individual machine seems to have a different method of working to accomplish the same object; and the true test of merit really rests with the simplest plan by which the object in view is accomplished. Now, let me compliment Mr. Morse upon the subtle discretion he has shown in quoting Mr. Brotherston. He quotes this sentence, "The question of budding low on the Paradise stock, so that the latter may be all under ground, is not settled by assuming that roots from the scion are beneficial or otherwise." Then, with wonderful discretion, he stops; but let me in justice to Mr. Brotherston quote the next sentence: "High budded stocks have a tendency to produce annual roots too near the surface, and even above the surface, which low budding stops." In what an entirely different light the full quotation puts the matter; and what more simple than to bud low to get over the difficulty, as well as to ensure the free swelling of the bark of the stock? Ah! but my friendly critic tells us that when lifting fruit trees a few years ago he found that those which had been planted below the union had sent out from the scion roots which were stronger than those from the stock. Those strong roots seem to have quite frightened him into the belief that too strong, troublesome growth would be the result. Now, fancy a man who believes in lifting trees on the Paradise every two or three years to prevent strong growth, being afraid of a few strong roots because they came from the scion instead of the stock. Apparently he has quite forgotten that a little root-pruning will soon put strong roots near the surface right.

Now let me refer to an extraordinary confusion of ideas which seem to emanate from Mr. Morse's brain. He does not believe in planting trees below the union because it leads to strong growth, but he does believe in lifting and replanting trees every two or three years. On page 606, last volume, he wrote that the whole of his trees had only 3in or 4in of stock showing above the soil, and as roots had struck out level with the soil, most of them would be taken up and be replanted to within an inch of the union. Really this suggests to me quite an interesting conundrum, which I will put to readers generally:—"After Mr. Morse has lifted and replanted his trees two or three times more, how far below the surface of the soil will the unions be?"

Now let me come to the question of root-pruning versus lifting. For the honour of the West be it said that my critic can lift and replant two fruit trees while I root-prune half of one—the trees to be of the same size, and to have been lifted every two or three years. A challenge of this description is always easy enough to make, because there is not the slightest chance of its ever being put to the test. I will, therefore, not deny the West of the honour of having an express fruit tree lifter and replanter; but I do, in the most emphatic terms, deny that, given two men of equal speed in working, the one would lift and replant two trees while the other root-pruned the half of one—the work in both cases to be done well. More, I cannot conceive how any practical man could seriously put forward such a contention. In regard to the wonderful mystery of making Apple growing a commercial success, under a system of continually lifting and replanting trees, I say emphatically that there is a great deal of waste of labour in the process. As Mr.

Morse is a market grower, I hope he manages to make it pay; but all the same, I am convinced he could make the business still more profitable by root-pruning instead of lifting.

Let those who grow for exhibition, and do not mind how much labour is spent on their trees, follow that plan if they like, but the less the market grower has to do with it the better. The fact is that trees on the Paradise require but little interference with their roots. Some of the best growers never find it necessary to root-prune at all. My experience is that only a tree here and there needs a check to counteract too vigorous growth, and when that check is necessary, it is better to do it so early that a very light root-pruning will serve, rather than wait longer and then have to deal with the roots more severely. In the case of trees planted from three to five years, I often take out a circle right round the trees in one year, at a distance of 2ft from the stem, and I have never yet found that the treatment was too severe, but that it just gave the necessary check. Trees which were so treated twelve months ago last October made, during last summer, beautifully sturdy growth of the right type, and the older branches are now bristling with blossom buds. With older trees growing very strongly, I should certainly only go half round the tree in one year. I may say, however, that only about ten per cent. of our trees have needed any root-pruning, the remainder fruit splendidly without it.

I see also that my friend from the West quotes Mr. Brotherton as supporting him in regard to lifting instead of root-pruning, but he should have made it quite clear that Mr. B. recommended lifting as a means of getting trees on the Free stock, or Crab, to fruit early. They, of course, need much more drastic treatment than trees on the Paradise.

Let me, in conclusion, hark back once more to planting below the union. The practice is bound to meet with opposition for a time, as did the use of the Paradise; but for all that it has come to stay, simply because early productiveness, combined with longevity, are thereby ensured. Now, Mr. Morse, you have a good market at your door; make the most of it, and don't waste the vitality of your trees by useless mutilation, and when next I come to the busy port of Bristol I shall try and hunt you up, and should you happen to stray into my district (you know where it is) come to me, and I will show you trees planted above, and some below, the union; from them you shall make your choice. You shall see also trees root-pruned, and others non-root-pruned, and a few neither root nor branch pruned, but I cannot show you any which have been lifted and replanted. What a task a man with twenty acres would have if he decided to adopt that plan.—G. C.

Window Gardens in Streets.

For the past three years, about this time, you have been good enough to allow me to draw the attention of your readers to the efforts of the Metropolitan Public Gardens Association to encourage the formation of outside window gardens in the poorer streets of the Metropolis. The object we have had in view is to relieve the great monotony of these thoroughfares by getting the occupiers to grow plants, flowers, creepers, &c., in boxes, pots, or baskets, outside some of their windows. It is astonishing what a transformation is effected by even a few such efforts on the part of the inhabitants, which change the whole aspect of a dull street, and gladden the eye of every passer-by. Many of the thoroughfares are too narrow for trees, so no other form of foliage is possible, but even where trees do exist the window gardens are a most desirable addition.

The association has therefore started prize competitions in various centres, getting the assistance of some suitable organisation in the vicinity to arrange local details. Last year there were twenty centres (chiefly situated in the central, eastern, and south-eastern parts of London); 520 entries, and 140 prize winners, entailing an outlay on our part of some £25. The results are considerably in excess of those of 1906, and we are encouraged to go on. I am anxious, therefore, to let it be known that the association is again prepared, so far as its means allow, to make money grants for prizes this year to any suitable parochial or other local organisation, school, or flower show society, &c., willing to arrange as part of its summer programme outside window garden competitions in the poorer parts of the metropolis. We were able to arrange for competitions last year in connection with several elementary schools, whose scholars proved to be keen competitors, and I hope that their number may be increased. I should like to add that we should be extremely glad of any contribution towards our prize fund, so that we may not have to curtail the number of our competitions for lack of funds. Any who desire to take advantage of our offer should apply without delay to our secretary, 83, Lancaster Gate, W., who will supply copies of regulations, &c.—MEATH, Chairman, Metropolitan Public Gardens Association, 83, Lancaster Gate, W.

Gardeners' Royal = = = = = Benevolent Institution.

THE annual election of pensioners upon the funds of the Gardeners' Royal Benevolent Institution took place at Simpson's, in the Strand, London, on Thursday last, January 23rd. The treasurer, Harry J. Veitch, Esq., F.L.S., V.M.H., as usual, presided; and among those known to us who were present were Messrs. Arthur W. Sutton, Arthur W. Paul, Geo. Monro, J. McIndoe, Geo. Paul, Alex. Dean, Geo. Wythes, P. C. M. Veitch, Owen Thomas, J. Willard, D. Ingamells, C. R. Fielder, H. G. Cox, W. Poupert, T. Morris, W. Watson (Kew), H. Howard, W. Howe, George Gordon, and J. T. Anderson. After the preliminary business the secretary read the

Report for 1907.

The committee in submitting their annual report, together with a statement of receipts and expenditure (as certified by the auditors) for the year 1907, again have the pleasure of congratulating the subscribers and donors to the institution on its continued success.

At no former period in the sixty-eight years of its existence has so much been done in the way of affording permanent and temporary assistance to the unfortunate members of the horticultural community—gardeners, market growers, nurserymen, &c., and the widows of such—as during the past year. Over £4,000 has been disbursed in permanent aid alone. That this happy condition has obtained is a matter for thankfulness, and the committee feel it is also an encouragement to the subscribers and others whose generous liberality has enabled them to carry on the work with so much benefit to those who, through illness and misfortune, have been obliged to seek assistance from the charity, and have not sought it in vain.

At the beginning of 1907 there were 227 pensioners on the funds—123 men and 104 widows—receiving annuities of £20 and £16 per annum respectively for life. During the year twenty have died, one man has been removed to an infirmary under medical orders; another, a widow, to an asylum owing to her mental condition, and another has left England for America to reside with her son. Of the men who died, three left widows, whose circumstances being such as to render them eligible, have been placed on the funds without election to receive the widows' allowance of £16 a year each for life, under Rule iii. 13. The committee now recommend an election this day from an approved list of fifty-two candidates, to fill the vacancies created. Fully sensible of the urgent needs of many of those who are appealing for aid, the committee sincerely wish they were in a position to assist a larger number, but this they feel cannot safely be done without the assurance of an additional income to meet the extra liability which would necessarily be incurred.

THE SPECIAL FUNDS.

The "Victorian Era Fund," and the "Good Samaritan Fund" still prove a source of much benefit and comfort. From the former fund nearly £200 has been distributed amongst the unsuccessful candidates at the last election who had formerly been subscribers, in terms proportionate to the length of time they had subscribed; and from the latter fund £106 has been given in small amounts as temporary relief to numerous applicants—whether subscribers or not—whose cases were of a most distressing and pathetic nature. The committee again beg to draw attention to the value and utility of these two funds: the one helps the candidate awaiting election, whilst the other bestows temporary help in cases of emergency. As the income only from these funds is available, special contributions earmarked for either of them will be warmly welcomed.

The annual festival dinner which took place at the Whitehall Rooms of the Hotel Metropole on June 26th last, under the presidency of the Hon. Walter Rothschild, M.P. (trustee), was most successful, and resulted in a substantial sum being raised towards carrying on the work. The committee desire to place on record their gratitude and indebtedness to the chairman for his earnest advocacy of the claims of the charity, and for his generous contribution to the funds. They also take this opportunity to express their sincere thanks to those gentlemen who acted as stewards or collectors; to the contributors of flowers; to the horticultural Press for their gratuitous and invaluable help; to Mr. James Hudson, V.M.H., for superintending the decorations; and to other friends throughout the country who in any way, directly or indirectly, contributed to the gratifying result attained. Grateful thanks are likewise tendered to the Right Hon. Mary Countess of Ilchester, for again allowing her beautiful gardens at Holland House to be opened to the public on the occasion of the great summer flower show of the Royal Horticultural Society, part of the proceeds obtained therefrom being handed to the institution; also to the Right Hon. Earl Beauchamp (Madresfield Court), and Sir

Frank Crisp (Friar Park) for similar kindness for the same object.

To the "Geo. Monro" concert committee they offer their acknowledgment for again contributing to the funds. Sincere thanks are likewise accorded to N. N. Sherwood, Esq. (trustee), for his gift of £20 to the unsuccessful candidates at the last election; and to Arthur W. Sutton, Esq. (member of committee), for kindly supplying a similar amount for a year's allowance in support of an incurably paralysed candidate. Very gratefully do the committee also acknowledge the services rendered by the hon. treasurers and hon. secretaries of the several auxiliaries which continue to be a source of strength and support, not only in obtaining additional financial aid, but in maintaining, as well as creating interest in, the operations of the charity.

THE FORTHCOMING FESTIVAL.

It is with great pleasure the committee have to announce that the Right Hon. Lord Aldenham will preside at the sixty-ninth anniversary festival dinner in aid of the funds on Wednesday, June 24th next, at the Whitehall Rooms, Hotel Metropole. They hope his lordship will be warmly supported by every lover of gardening and flowers, and that the festival will prove as successful in furtherance of the cause of benevolence as those in previous years. The names of gentlemen willing to act as stewards will be much appreciated.

The committee, unfortunately, have again with sorrowful and melancholy regret to refer to the large number of losses by death amongst the friends and supporters of the institution they have sustained during the past year. They would especially mention the Marquis of Bristol and Maxwell T. Masters, Esq., M.D., F.R.S., both of whom were vice-presidents for over forty years, and took a keen and lively interest in the institution. Dr. Masters being always ready to help forward the work. Among others who have passed away are Sir Alex. J. Arbuthnot, chairman of committee for a short time some years ago; Mr. James H. Veitch, also formerly a member of committee, and Lord Battersea; the Hon. Mark Rolle, Sir Michael Foster, Baroness Burdett Coutts, Mr. J. Hill White, one of the founders and hon. treasurer of the Worcester Auxiliary, and Mr. R. B. Cater, of the Bristol and Bath Auxiliary.

The loss of these long tried and generous-hearted friends will be severely felt, and their vacant places most difficult to fill. Still the committee feel confident that those who remain in their midst will not relax their efforts, but will do all they possibly can to obtain fresh supporters to take the places of those who have been removed.

With much gratitude the committee acknowledge the practical aid and sympathetic help afforded them in their work, and they now very earnestly appeal to every well-wisher of this National (unsectarian) Horticultural Charity for further exertions and interest on its behalf, so that the beneficial work which has been carried on with such signal success for the poor and needy for so many years may continue to be maintained. —HARRY J. VEITCH, Treasurer and Chairman of Committee; GEORGE J. INGRAM, Secretary.

ELECTION OF OFFICERS.

Briefly Mr. Veitch, as chairman, commented upon the satisfactory report that had been presented. A sum of £4,316 had been disbursed on behalf of the pensioners, who last year were more numerous than at any previous date of the institution's history. Tribute was paid to Mr. Ingram, the secretary, and the auditors' statement that "The books are well kept" was received with applause. It was announced that Mr. Sherwood had again promised £25, which sum was to be divided among the unsuccessful candidates. (Cheers.) Mr. Veitch then proposed the adoption of the report and the balance sheet as audited. Mr. H. Howard seconded, and it was carried unanimously.

The election of officers was proceeded with. Mr. Harry J. Veitch was, of course, chosen with acclaim to the honoured post of treasurer, which he has held with distinction for twenty-two years. Mr. Arthur W. Sutton made the proposition, and incidentally remarked that owing to the changed conditions now existing between business firms and their gardener clients, it was difficult for the seed trade to show their appreciation of the care and skill of the gardeners as formerly, but he thought that this institution afforded one means of doing so.

In thanking the subscribers for again reposing their trust in him, Mr. Veitch drew attention to the large number of unsigned voting papers that had come in, being no less than forty-eight, with an aggregate of 355 votes, which, of course, were lost.

Mr. Geo. J. Ingram was proposed as secretary by Mr. Geo. Monro, seconded by Mr. Geo. Wythes. "Every subscriber and every pensioner owes Mr. Ingram a debt of gratitude," said Mr. Monro, "and he is a perfectly ideal secretary." Mr. Ingram returned thanks for his re-election, mentioning that he had now held the post for sixteen years, and he believed he would never lose their confidence.

Next the retiring members of committee were re-elected, on the motion of Mr. Curtis, seconded by Mr. Poupart. Their

names were Messrs. W. Y. Baker, W. Crump, A. Mackellar, P. C. M. Veitch, James Hudson, Edward White, S. M. Segar, and Alderman R. Piper; and a vote of thanks was accorded for their past services.

The auditors (Messrs. Swift, Manning, Willard, and B. J. Monro) were also re-elected for the ensuing year, and thanked, on the motion of Mr. Owen Thomas, seconded by Mr. A. Dean. The latter enquired if it could not be possible to identify the senders of the unsigned voting papers and so use their votes. Mr. Veitch said there was no guarantee that the papers had reached the proper voters, and therefore they were debarred from using the votes.

RESULT OF THE ELECTION.

The meeting then stood adjourned until the declaration of the election, which took place at a little after five o'clock. The result showed the following to be successful:—

1 Mack, James	3671	13 Foote, Thos. J.	2481
2 Cookson, Wm.	3455	14 Solman, Ann J.	2452
3 Swanborough, Wm. ...	3307	15 Pooley, Wm.	2426
4 Green, Geo. H.	3073	16 Kinns, Charles	2360
5 Cheaser, James	2972	17 Maher, Robt.	2357
6 Edwards, Wm.	2797	18 Clark, Alex.	2338
7 McAdam, Robt.	2788	19 Moore, Wm.	2270
8 Manderson, Mary	2533	20 Jones, Wm.	1957*
9 Clinging, Euphemia ...	2543	21 Hale, Susan	1561*
10 Stanton, John	2535	22 Jones, Thomas	1611†
11 Blandford, Nemehial ...	2498	23 Stookwell, Laura ...	106‡
12 Little, George	2496		

It will be seen that nineteen candidates were elected (exclusive of the four last on the list), which is one more than was named on the voting papers. This was owing to the death of a pensioner since the papers had been sent out, and the subscribers agreed to add the extra name. Also at the conclusion of the poll Mr. Arthur W. Sutton kindly provided another pension for this year, and the committee selected Thomas Jones,† who had 1,611 votes. Mr. Geo. Monro likewise announced his willingness to furnish one year's pension for an unsuccessful candidate, and Laura Stookwell,‡ aged 82 years, who only polled 106 votes, was elected. Under rule III., 13, the committee have the power to add two candidates over and above the number elected by the subscribers. The selections, of course, always fall on deserving cases thoroughly investigated by the committee, and the rule is a beneficent one. The candidates elected on this occasion were William Jones* and Susan Hale.*

The votes accorded to the other candidates were:—George Boothroyd, 1,398; Charles Brown, 1,670; John Burton, 1,531; Susannah Butters, 1,404; Thomas Chapman, 1,913; William Cope, 2,153; Thomas C. Cushion, 1,906; John Fairlie, 1,454; David Galloway, 1,070; George Gedge, 1,363; Emma Gilbert, 1,696; Eliza Hobby, 1,158; Alf. H. Hunking, 729; Julia Lansdown, 1,117; Maria Mackay, 1,909; Jesse Nash, 1,806; Jane Noble, 2,051; Wm. Rapley, 1,490; Edwin Rattue, 2,123; Wm. Reynolds, 2,162; Joseph Talmage, 2,246; James Young, 1,281; Fanny Bury, 79; Wm. S. Carpenter, 23; Mary A. Chew, 38; Wm. Rainbird, 226; Thos. Steward, 34; Joseph Throp, 1,293; Nancy Wright, 877.

The Friendly Supper.

It is several years since we remained to the friendly supper that follows the serious business of the afternoon. About sixty of the friends stayed to this most pleasant function, over which Martin H. F. Sutton, Esq., eldest son of Martin John Sutton, Esq., presided. There were numerous additions to the afternoon party, among those sitting down being Mr. W. A. Bilney, the society's honorary solicitor; with Messrs. Leonard Sutton, Edward Sherwood, Edward White, W. Y. Baker, J. McKercher, Joseph Roohford, James Wood, jun., Rudolph Barr, George Barr, John Gould Veitch, and H. G. Cove. No more pleasant evening could be desired—the report, the speeches, and the vocal music by the Westminster Singers, all being most excellent.

After the loyal toasts, Mr. Sutton proposed continued prosperity to the Gardeners' Royal Benevolent Institution. But first he read a letter from Mr. George Bunyard, V.M.H., who regretted to be indisposed by a cold.

The institution had reached the sixty-ninth year of its existence, or in other words, to within two years of the three score years and ten that are stated to be man's allotted span. Mark Twain had said at a public banquet a few years ago, that all the great men of the world had passed away, and that he himself wasn't feeling very well! No one could allege, however, that the Gardeners' Benevolent Institution was in that condition. It was never in a better way. During the last sixty-eight years it had spent £117,000 in relief, and it had brought happiness into the lives of hundreds. And all those who obtained relief had proved worthy of the institution and its help. Yet they could not be content, said Mr. Sutton, to rest on their oars; and comparatively large though the income is, it is by no means commensurate. "I honestly say that no class of the community better deserve help, and no class of skilled labour are so ill paid as gardeners, making it, there-

fore, very difficult for them to save money." In concluding, the chairman coupled with the toast the name of Mr. Harry J. Veitch, who, in reply, said that one of the finest things ever done was the passing a rule to allow widows to succeed to the pension on the death of their husbands in all cases of necessity. Four widows had also been elected that day. Mr. Veitch jocularly asked what would they do with their funds if old age pensions were granted by the State? But he had little hope that old age pensions would ever sufficiently relieve them, if they even materialised.

In toasting "The Committee, Honorary Officers and Country Friends," Mr. Geo. Paul, V.M.H., as a past member of the committee, said he knew something of the care and attention required. He mentioned that he had resigned as a protest to raising the annual pension for men from £16 to £20; but he, of course, still took an active interest in the welfare of this charity. Mr. Bilney's name, as honorary solicitor, was coupled to reply. Mr. Paul thought that the best thing about Mr. Bilney was that he had never defended a single case against the society! The speaker drew attention to the good work of the country branches at Exeter, under Mr. Peter Veitch; at Worcester, where the late Mr. White had done so much hard work; and at Reading, where Mr. H. G. Cox (of Sutton's) was secretary, and elsewhere. Each and all deserved the heartiest recognition and thanks.

In rising to respond, the honorary solicitor said that he was glad that he had never undergone the ordeal of preparing a bill of costs against the institution, nor the ordeal of having the

said bill "taxed." So far as he was able he would do his utmost to prevent litigation. It would be criminal if every effort were not made to obviate law proceedings. He also referred to the goodwill of the gentry in the country, many of whom threw open their gardens on behalf of the funds of the society.

Mr. Edward White also spoke, and thirdly, Mr. Peter Veitch. The latter said he was delighted to be called upon to respond for the country members, as ever since he had gone to Exeter in 1881 he had taken a keen interest in this work. By the aid of the Devon and Exeter votes he had been successful in securing the election of three candidates that day. It was the wisest resolve the committee ever made when they established the country branches, because then they attracted local attention, and won the affection of the gardeners who previously had been inclined to regard the institution as mostly metropolitan. Now the interest spreads to the farthest distant parts of the British Islands.

The concluding toast, "Our Chairman," was proposed by Mr. Edward Sherwood, who asserted that he was no orator, but he felt that everyone present was alike grateful to Mr. Martin H. F. Sutton for so kindly providing charming music and excellent cigars, as well as for presiding and advocating the claims of the charity. It should be mentioned, too, that Mr. Sutton also provided the neat and pretty programmes.

Mr. Sutton responded, and the proceedings terminated at a little after nine o'clock. Unfortunately for travelling, the night was densely foggy.

STATEMENT OF RECEIPTS AND EXPENDITURE FOR THE YEAR ENDING DECEMBER 31st, 1907.

RECEIPTS.		£	s.	d.	£	s.	d.
To Balance	1,001	13	2
" Amount on deposit	3,580	0	0
" Annual subscriptions	1,444	17	6
" Donations at and in consequence of festival dinner, including collecting cards and special gifts	2,796	14	3
" Legacy, the late H. Alton, Esq.	10	0	0
" Grant from Exors. Edward Poole Estate	64	9	5
" Return of Income Tax	42	19	8
" Dividends	937	15	3
" Sale of waste paper	0	8	6
					5,317	4	7
					49,898	17	9

EXPENDITURE.		£	s.	d.	£	s.	d.
By Pensions and gratuities, including Mr. Sherwood's and Mr. Sutton's gifts	4,033	14	9
" Expenses annual meeting and election	9	19	0
" Rent, firing, lighting, cleaning, &c., &c., including salaries of Secretary and Clerk	536	18	5
" Printing and stationery, including Annual Reports, Lists of Subscribers, Polling Papers, and Appeals	137	1	11
" Less advertisements in Annual List	48	6	10
" Expenses festival dinner	203	17	5
" Less dinner charges	150	0	6
" Postages, including Annual List, Polling Papers, Appeals, &c.	49	13	4
" Advertisement, "Fry's Charities"	3	3	0
" Wreath	1	3	9
" Travelling expenses	9	5	6
" Carriage, telegrams, insurance, repairs, and incidental expenses	8	5	7
" Bank charges	0	3	6
" Investment in India Three per Cent. of grant from "Edward Poole Estate"	64	9	5
" Placed on deposit	3,890	0	0
" Balance with Treasurer	1,123	18	10
" " Secretary	5	10	8
					1,129	9	6
					49,898	17	9

In accordance with the rules of the Gardeners' Royal Benevolent Institution, we certify that all our requirements as Auditors have been complied with, and we report to the subscribers that we have compared the books, together with the bankers' certificate of securities deposited with them, and that the balance-sheet is a true and correct account of same. We also wish to add that we find the books well kept.

T. SWIFT,
BERT. J. MONRO,
J. WILLARD.

January 21st, 1908.

* Required to meet the quarterly payments on January 1, 1908.

VICTORIAN ERA FUND.—BALANCE SHEET, 1907.

RECEIPTS.		£	s.	d.
To Balance, January, 1907	...	...	...	...
" Donations, 1907	...	...	...	...
" Dividends	...	...	...	...
" Return of Income Tax	...	...	...	...
		178	18	8
		2379	3	5

EXPENDITURE.		£	s.	d.
By Gratuities	...	...	...	...
" Balance, December 31st, 1907	...	...	...	...
		379	3	5
		2379	3	5

GOOD SAMARITAN FUND.—BALANCE SHEET, 1907.

RECEIPTS.		£	s.	d.
To Balance January, 1907	...	...	...	...
" Donations	...	...	...	...
" Dividends	...	...	...	...
" Return of Income Tax	...	...	...	...
		142	19	10
		2373	17	5

EXPENDITURE.		£	s.	d.
By Gratuities
" Balance, December 31st, 1907
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Audited and found correct { T. SWIFT.
BERT. J. MONRO.
J. WILLARD.

January 21st, 1908.

Royal Horticultural Society.

JANUARY 28TH.

The exhibition on Tuesday was much larger than any since early in November, and varied too. The earliest of the spring flowers were being shown, and there were several nice orchid groups. Carnations were prominent.

At three o'clock an address was given by Mr. Walton on the Alpine flora, illustrated by coloured photographs. These were said to be produced by direct photography. When he gets the preliminary results to his satisfaction Mr. Walton then rephotographs from the film by the three colour process, and these slides are fit for the finest style of catalogue work. We understood Mr. Walton to say that he combined the Lumiere process with his own. In many cases, if not in all, the photographs are taken three times in each case to combine the primary colours; and it was also admitted that they were touched up by hand. The photographs, however, were very beautiful, and many of them drew forth applause. A lecture on *Brassica* hybrids, illustrated with lantern views, by Mr. A. W. Sutton, followed at four o'clock. The Scientific Committee on this occasion made their meeting an open one. We hope to allude in the next issue to Mr. Sutton's address.

Fruit and Vegetable Committee.

Present: Mr. Geo. Bunyard (in the chair); with Messrs. W. Bates, Alex. Dean, Wm. Pope, R. Lye, Geo. Kelf, H. Parr, J. Davis, G. Reynolds, James Vert, Owen Thomas, C. G. A. Nix, W. Poupard, Jos. Cheal, and A. R. Allan.

A collection of forty dishes of Potatoes and fifty bulbs of Onions (at an average weight of 3lb each) came from Mrs. Denison (gardener, Mr. A. G. Gentle), Little Gaddesden, Herts. Among the Potatoes, which were models of perfection, were Carter's Queen of the Veldt, Carter's Goldfinder, and Carter's Longkeeper, which are each comparatively new, and are highly spoken of. The Onions were Ailsa Craig, Record, and Coconut. (Silver-gilt Knightian medal.)

Messrs. J. Peed and Sons, West Norwood, S.E., staged a collection of Apples, and were unanimously awarded a silver Knightian medal. They were all clean and richly coloured, comprising Annie Elizabeth, Tibbett's Pearmain, Lord Derby, Tyler's Kernel, Bismarck, Lord Hindlip, Alfriston, and New Hawthornden. A dish of Pears, Duchess de Nemours, was very handsome.

Orchid Committee.

Present: Mr. J. Gurney Fowler (in the chair); with Messrs. James O'Brien, H. Little, Harry J. Veitch, W. Boxall, A. A. McBean, J. Wilson Potter, F. J. Hanbury, R. Thwaites, F. Menteith Ogilvie, W. Colt, Arthur Dye, W. P. Bound, H. G. Alexander, H. A. Tracy, W. H. White, H. Ballantine, C. W. Bolton, R. B. White, Norman C. Cookson, and de Barri Crawshaw.

Messrs. Linden, of Brussels, who have not been seen at Vincent Square for a long while, staged some admirable *Odontoglossums*—*O. Notteanum* (*Loochristense* x *Wilckeanum*), with bright yellow tipped flowers, white in the centre and blotched crimson; also *O. exultans formosum* (*crispum* x *excellent*), after the style of *O. grande*, and very handsome; and *O. orphanum* (parents unknown), which had ten fine flowers. No awards, however, were made.

Messrs. Armstrong and Brown, from Tunbridge Wells, had a few choice orchids, among them *Cypripedium Fairrieianum*, *Cymbidium Woodhamianum*, pretty green segments with purple tipped lip; *Laelia anceps autumnalis*, and some good *Odontoglossum crispum*, one a spotless white. (Silver Flora medal.)

Cypripediums came from Messrs. Heath and Son, Cheltenham, the plants in good health and full of flower. *Cyp. Leeatum giganteum* was prominent, and several insigne varieties.

Messrs. Cyphers, from Cheltenham, staged *Sophranitis grandiflora*, *Odontoglossum Rossi majus*, a grand specimen plant of *Cymbidium Winnianum* with ten racemes; also some *Calanthes*, *Laelia anceps* varieties, *Lycaste Skinneri*, and *L. S. alba*, together with an ideal representation of well-grown healthy *Cypripediums*. (Silver Flora medal.)

Odontoglossum crispum in flower, intermixed with *Laelia anceps Sanderiana*, very well grown and healthy, came from Messrs. McBean, of Cooksbridge. There was also an enlivening of *Epidendrum radicans*, nicely flowered. (Silver Flora medal.)

Messrs. J. W. Moore, Ltd., Rawdon, Leeds, brought just a few representative things, including a very fine *Odontoglossum*. (Silver Banksian medal.)

Messrs. Charlesworth and Co., Heaton, Bradford, had a choice group in which were *Cattleya Octave Doin* (*Mendeli* x *aurea*), very fine; *Catt. Enid* (*Mossie* x *gigas*), with four grand flowers; and a central group of *Laelio-cattleya Andromeda*

(*L. flava* x *C. aurea*). This was very bright and telling. (Silver Flora medal.)

Messrs. James Veitch and Sons, Ltd., Chelsea, S.W., contributed *Cypripediums* mainly, which were conspicuously clean and robust. *Cyp. aureum hyceanum* was fine, and there was a batch of *Euryades* x *villosum* seedlings in flower, some of them very striking. *Epidendrum Endresi*, with white and lavender coloured flowers; also *Brasso-cattleya Orpheus rosea*, a very fine flower, with good petals and lip, nicely fluted, and coloured rosy-mauve, with yellow in the throat and purple beam in the middle. (Silver Banksian medal.)

F. Menteith Ogilvie, Esq. (gardener, Mr. W. Balmforth), The Shrubbery, Oxford, had fully a dozen potsful of *Cypripediums*, clean and full of flower. There were pieces of *Cyp. insignis Sanderæ*, *Euryades*, and *Leeatum*. (Silver Flora medal.)

Floral Committee.

Present: Mr. W. Marshall (in the chair); with Messrs. Chas. T. Druery, Henry B. May, James Walker, Walter T. Ware, G. Reuthe, J. W. Barr, R. C. Notcutt, R. W. Wallace, C. Blick, F. Page Roberts, Jas. Hudson, R. Hooper Pearson, J. F. McLeod, Chas. E. Pearson, Arthur Turner, Wm. Cuthbertson, Herbert J. Cutbush, W. P. Thomson, T. W. Turner, E. H. Jenkins, Wm. J. James, and Edward Mawley.

Messrs. H. Low and Co., Bush Hill Park, Enfield, staged a nice display of winter-flowering Carnations. The chief varieties were White Perfection, Rose-pink Enchantress, Mrs. Burnett, Britannia, Victory, Beacon, and Robert Craig. (Silver Banksian medal.)

Mr. L. R. Russell, Richmond, occupied an entire table with hardy ornamental shrubs; chiefly of a variegated character. The plants were well developed and the colouring excellent. A few of the most striking features were *Eleagnus Simoni*, *E. japonica aurea*, and *E. picta aurea*, the front being formed with well berried plants of *Aucuba japonica vera*. (Silver Banksian medal.) From Mr. G. Reuthe, Hardy Plant Nursery, Keston, came a small display of alpine plants, which were the picture of health.

Messrs. J. Waterer and Sons, Ltd., Bagshot, arranged a group of Hollies, chiefly of the standard type. The trees were remarkably well grown and beautifully berried. The weeping forms would not appeal to the general public. The colour of the other varieties was beyond reproach; a most attractive exhibit to those interested in hardy shrubs. (Silver Flora medal.)

A bright display of Carnations came from Mr. H. Burnett, St. Margaret's Vineries, Guernsey. The flowers were not only large, but of good colour. The best were Marmion, Robert Craig, Enchantress, Mikado, Britannia, and The President. (Silver Banksian medal.) The Misses Hopkins, Mere Gardens, Shepperton-on-Thames, staged a small exhibit of Primroses.

Messrs. H. Cannell and Sons, Swanley, arranged a table of Primulas, which were remarkably good. The plants were just opening their first trusses of flowers. The individual pipes were large, of good substance, and well developed; another fortnight will see them in their full beauty. (Silver Flora medal.)

From Messrs. J. Peed and Son, West Norwood, came a collection of rock and alpine plants in excellent condition, also a collection of *Primula Streathamii*, a white variety of poor type; also a few plants of *P. obconica grandiflora*, which promise well for the future. Messrs. W. Cutbush and Sons, Highgate, occupied an entire table with an exhibit of miscellaneous hardy plants and a group of Carnations. (Silver Flora medal.)

Messrs. H. B. May and Sons, Upper Edmonton, had a nice exhibit of ferns and foliage plants. The former were of a decorative size, and included fine plants of *Nephrolepis todeoides*, *Platycerium stemmaria*, *Davallia Veitchii*, and *Nephrolepis exaltata superba*. Fine decorative *Dracaenas*, such as *Monarch*, *angustata*, *His Majesty*, and *Lord Wolseley*, were of excellent colour, while a few good *Crotons* and *Aralias* completed the display. (Silver-gilt Banksian medal.)

The Guildford Hardy Plant Nursery were represented by a small table of hardy *Ericas* and *Veronicas*—*V. decussata*, *V. Hectori*, *V. Kirki*, *V. carnosula*, and *V. anomala*.

A beautiful display of *Cyclamens* came from Messrs. Sutton and Sons, Reading. The plants were well developed and loaded with flowers. The White Butterfly, Salmon Pink, and various colours of the fringed varieties made a nice display. Needless to add, the plants were splendidly grown, and tastefully arranged. (Silver Flora medal.)

Messrs. Barr and Sons, Covent Garden, had a small display of hardy flowers and forced bulbs. The chief items were *Helleborus foetidus*, *H. purpureus superbus*, and *H. orientalis punctatus*, while some Italian Hyacinths and Narcissi completed the display.

Three several displays of paintings, which attracted considerable attention, were shown. Miss Farrer, Acton, obtained a silver Flora medal; Mrs. Miller, Marlow, a bronze Banksian; and Miss Sumner Jones, Chiswick, also won a bronze Banksian medal.

Vegetables.

Potato, Earl of Lathom.

We bring to the notice of readers an excellent late kidney-shaped Potato, variety Earl of Lathom. It was introduced by Messrs. Dicksons of Chester, and is most favourably known. It has a sturdy habit of growth, is a heavy cropper, with smooth, handsome tubers, having shallow eyes. The cooking qualities are said to be unsurpassed.

Why Do Potatoes Deteriorate?

Some readers may be inclined to query first, "Do Potatoes deteriorate?" The exciting boom of only a few years since brought a great array of money-making novelties into the market. It was really astonishing how readily new names and new stocks were forthcoming, just at the time when the widely proclaimed boom was at its height. It would almost seem that by some magical means they sprang into spontaneous existence.

very exceptional quality of the cooked tuber. His customers were so favourably impressed that they readily paid a higher rate for this particular brand, and almost clamoured for the languishing stock. Strange to say, this high character has forsaken the British Queen, and a substitute has to be found. Both the crop and cooking quality has so diminished as to make it unsought for and unappreciated. Here is a case presumably of marked deterioration, which needs an explanation. Field cultivation is that which gave rise to the deterioration here; and if our stock of Snowdrop were transferred from spade to plough tillage, the self-same depreciation would be at once begun. This we have proved ourselves on more than one occasion.

Some Potatoes need more liberal manurial dressings than others, and what is important, if heavy yields are sought, is manure of a kind suited to the crop. In the garden, stable manure is that which is often the most readily available; indeed, there are cases where no other is obtainable. Now, light land will loathe this light food when it has been constantly employed for years past. If a good dressing of cow manure fresh



Potatoes, Earl of Lathom.

[Copyright, Dicksons.]

But one is forced, after momentary reflection, to inquire what has happened to this legion? and where have they gone? It would seem that space has closed over them, as did the waters of the divided sea in the case of the pursuing Pharaoh in Egypt. Surely some, indeed a good many, of the high priced novelties have displayed this deterioration in a marked manner. But while depreciation of stock is apparent in some varieties, in others it is not. In our case we have a stock of the old favourite Snowdrop that has been perpetuated many years—how many is quite beyond our ken, but there is still ample vitality, and still the same high quality. We have within recent years lifted almost record crops of this kind when the season, the soil, and its cultural provisions have been of the best. "A sack to the lug," to use a rustic expression, signifying 240lb weight to each five and a half square yards, is regarded as a full crop. Many have to be content, and are satisfied, with half that quantity, not only of Snowdrop, but many other kinds also.

Another variety which has come and gone, and by many been forgotten, is the old Cosmopolitan, a Potato that can challenge many of the new first earlies for pace and crop. We have local evidence that so far as debility or lack of stamina is concerned, this Potato lacks none; at the same time, other growers think there is weakness. A large Potato grower of our acquaintance formerly stood by British Queen as the best paying Potato he could plant, the reason for this being the

from the farmyard can be brought in and placed "between the spits," almost any crop that follows such a dressing will show immediately the influence of the change of food. The chemical elements of soil again account for much in Potatoes, favourable or otherwise, and I am convinced that when quality fails to please, the fault may often be traced to the ill-adapted nature of the soil. This is so marked a character of our garden that only a few varieties can be grown to develop a good standard quality in a cooking test, hence a limitation of varieties is always necessary. The heaviest cropping kind of the year is Duchess of Cornwall, which is also of good quality; Snowdrop and Factor come next. Needless to say, indispensable as are the first earlies, they cannot compare with these main-crops in weight of crop.—W. STRUGNELL.

Potatoes and Peas.

In connection with the distribution of certificates for cottage and allotment garden cultivation, Mr. A. Dean, V.M.H., horticultural instructor to the Surrey Education Committee, gave a lecture at West Clandon Schools recently on practical gardening. The Earl of Onslow took the chair. Mr. Dean spoke chiefly with regard to garden produce, what seed to sow and how to sow it. Enlarging on the enormous difference in the yield of Potatoes from England, Scotland and Ireland, he said that a trial at Chessington had produced from six rows twenty-six tubers of Surrey seed 91lb only; of Scotch ditto, 365lb;

and Irish 407lb. He predicted a great boom in Irish varieties. They had not, so far, been successful in establishing the reason for this abnormal difference over the home seed, but it was felt that there must be something in the climate of the two countries. For early seeds he recommended Sir John Llewelyn (English), The Colleen (Irish), and British Queen (Scotch), and for later crops, Up-to-Date, Factor, Dalmeny Beauty, and Superlative. They must be careful not to plant too close—the rows of early seed should be 27in apart, and of later seed 30in. The cultivation of green Peas required considerable care and skill. As in the cultivation of everything else, they must not hesitate to put their backs into the ground and work it deeply. He emphasised the importance of sowing thin—they should drop the Peas in at intervals of from 2in to 3in. He recommended as seed the Empress of India, Superlative, Early Giant, Centenary, and Prizewinner.

Young Gardeners' Domain.

** The prize is awarded to "P. B. W." (Mr. H. Prince, Bear Wood, Wokingham, Berks), for his letter hereunder:—

Suspended Wire Baskets in Conservatories.

This is a subject which, as far as I remember, I have seen very little written about in the "Domain." It has always been my belief that a few suspended wire baskets, in which are planted either flowering or foliage plants, add greatly to the effect of a conservatory, no matter what its size may be. I will mention some of the plants which are admirably suited for this purpose. At the present time Begonia Gloire de Lorraine would give a very bright appearance to the roof of a conservatory, and they do equally as well when grown in baskets as they do in pots, or if, when in flower, they are suspended alternately with baskets of Asparagus Sprengeri the effect would be greatly improved. If desired the roof of a conservatory need never be without flowering plants; as soon as the Begonias are over, their places can be taken by Lachenalias, and there is nothing that lends itself better to cultivation in baskets; in fact, I believe the beauty of the Lachenalia is not properly seen if grown in pots. The soil should be placed in a conical shape in the wire baskets, of course the baskets being first lined with damp moss, then the bulbs dotted round the sides and over the bottom, the effect seen (when in flower) I am sure will please. There are many good varieties, a few of the best being aurea gigantea, Wrighti, Brilliant, W. E. Gumbleton, tricolor, racemosa, His Reverence, &c.

After Lachenalias what can be had better for this purpose than the beautiful Lobelia Richardsoni, so seldom seen in gardens; it is easy to cultivate, doing well either from cuttings or by division. At the time the Lobelia is in flower, the peculiar-shaped flower, Lotus peliorynchus can also be had. These two suspended alternately in a conservatory give a charming effect; I have seen them once used like this, and it is a sight I shall not forget for some time. The real beauty of the Lobelia Richardsoni and Lotus peliorynchus flowers cannot be properly seen unless they are in a suspended position overhead. When these are finished flowering, Achimenes can be had in the summer months, and they do very well in baskets, if dotted about the same way as recommended for Lachenalias. Careful watering is essential for good results from the time the baskets are made up. There are numerous other plants suitable for this purpose, Ivy-leaved Pelargoniums and Petunias do very well. If foliage plants are required, Tradescantias, Nephrolepis, some varieties of Davallia, and many other ferns will be found excellent for the purpose; some of these are often seen grown in this way, but if something showy is required a few of the plants mentioned above would be well worth a trial.—P. B. W.

To Naturalise Forced Bulbs.

From now till the end of April there will be thousands of bulbs turned out of hothouses, a great many of which no doubt will eventually find themselves in the rubbish yard. Surely this, to say the least of it, is a sad end to such a beautiful, yet short existence. For the sake of a little trouble and care they might easily be saved, and many an old rough bank, formerly an eyesore, be transformed into a beautiful spring garden. The bulbs will want careful treatment after they have been forced, and while the weather is cold would require to be protected from the frost. A cool frame is preferable where the space could be spared. Plenty of air (whenever the weather is favourable), and careful watering will soon revive their flagging energies, and as the year progresses they could be shifted out into some shady moist position to be healed out later under a north wall, or in some damp shady place where they could finish ripening off.

As soon as the foliage has quite died down they should be forked out, and after being dried carefully, be sorted and stored away until October, when they may be planted out in some preconsidered position. Very good results cannot be looked for the first year; but if care is taken and they are planted where

the foliage is able to die naturally, better results will be noted the following year. The Narcissi lend themselves more readily to this treatment than do most of the other bulbs. I have also seen Hyacinths and Tulips amply repay the trouble expended on them. The great thing, of course, is to see that your bulb is well ripened.

I can foresee the many arguments that will be brought against this treatise; but in my mind the advantages far outweigh the disadvantages. There is nothing so pleasing to the eye as to see a natural bank ablaze with these subjects in full bloom, their many colours showing up so distinct against the fresh spring-like foliage. I pen these lines in the hope that they may be instrumental in lengthening the life of some of our forced bulbs.—H. Wood, Lydhurst, Haywards Heath, Sussex.

Lucullas

I should like to say a few words about these beautiful greenhouse flowering shrubs, which I think should be grown in every garden. There are only two species, namely, *L. gratissima* and *L. pinceana*. There is very little difference except that *L. pinceana* has larger and very sweet scented flowers; but *L. gratissima* is more commonly grown. They may be propagated by cuttings of the young shoots taken about the middle of June, inserted in sandy soil and kept close in a gently heated frame. They may also be raised from seed, but not with any great success. The plants must be potted firmly in a compost of fibrous loam and peat in equal parts, and one-eighth of silver sand. The pots should be well drained, as the plants require plenty of water in the summer. They are, however, much more successful when planted in a bed prepared for them. Pruning should be done in winter, and old plants may be cut back to the old wood, the spur system answering very well. As the plants are subject to bug they should be frequently looked over, and in winter when they are resting they should be dressed with Gishurst compound.—RICHARD WADHAM, Quex Park Gardens, Birchington, Kent.

The Stove.

In the majority of gardens this structure always seems to possess a fascination for the young gardener, and generally, where there are a number of places in close proximity, there is keen competition amongst the young chaps to see who can produce the best grown Crotons or stove flowering plants. Well, I think a few remarks on stove flowering plants will not be out of place at this season. Beginning with *Acalypha Sanderiana*, this is a plant often neglected in the stove. I have heard the remark that it is not worth growing, simply because, through neglect, it has become root-bound in a small pot; then some day, when the stove is being overhauled, it is "shoved" into a pot several sizes too large for it. The result is that it grows to nothing but leaves and soft top growth, with an apology for a catkin here and there. If stuck under a glass in small pots in April, or even earlier, and given a shift as it requires, until it is put in a 7in pot (which is quite large enough to grow a specimen tree 3ft or 4ft high), a beautiful plant will result, with long catkins from the top to the rim of the pot. It should be grown as near the glass as possible, and given plenty of feeding when root-bound in its final pot.

Plumbago rosea is another beautiful and useful stove plant when well grown. I think it is best to propagate from cuttings each year, as the old plants when cut back are never so well furnished with leaves, nor are the flowers so strong as those on the young plants. If pinched twice before they are put in their flowering pots nice bushy plants can be had, which are easily shifted about. Besides making a splendid show in the stove, the flowers are very effective on the dinner table.

Amongst the Gesneras there are many beautiful varieties; but I think the most useful and decorative sort for a stove is *G. refulgens*. Besides its beautiful dark velvety foliage, when well grown it produces a lovely head of flowers, which last a long time if the house they are in can be kept drier when the plants are in full flower. Propagation is easily effected by cuttings, leaves, or by increase of corms. If about five corms are placed in a 7in pot, three-parts filled with good peaty soil, and covered with about half-an-inch of soil, and watered very carefully till the growths are a few inches long, there will be no difficulty in having a fine show for weeks.

In conclusion I would like to say a few words on stove climbers. I will take those three of the sorts most frequently grown, i.e., *Stephanotis*, *Allamanda*, and *Gloriosa superba*. Now is the time to look after the *Stephanotis*. If the plants are in pots, give a good top-dressing with turfy loam with a dash of artificial manure. If there is not much room for top-dressing do not be afraid to cut down the ball a bit (from the top), roots and all; it will soon root up through the top-dressing and make rampant growth.

The beautiful *Allamanda* generally causes little trouble if the wood has been well ripened and given a pretty hard cut back in the spring, and kept dry through the winter. When the shoots get too crowded give a good thinning out, and allow the flowering shoots to hang. If a few pots of *Gloriosa superba*

are grown and taken up the wires on the roof, they will make a lovely show for a long time. Let it ramble through the Allamanda if it will; the orange colour of the Gloriosa and the rich yellow of the Allamanda go well together.—B. G. J., Dalkerth.

The Rock Garden.

From now onward the rock garden will require a good deal of attention, especially after the recent frosty weather. We all have a very good idea what havoc is played amongst the smaller alpine, such as Saxifragas and Sempervivums by Jack Frost. Directly the opportunity presents itself a good look round should be given, as many will be found lifted right out of the ground, especially those that have been replanted in late autumn, as they have never really got a firm foothold. The latter should be protected with Bracken, or some good Fir branches. I prefer the branches, as they are much more readily handled, and also much cleaner. Once the Bracken gets wet it very soon breaks and looks untidy. Having been round the garden and found what requires attention, the first thing to do is to mix a compost of loam, leaf soil, and peat, with some fine rubble and sand. Convey this alongside your plants and commence business. Having worked the soil amongst them, press it firmly in, and a few stones mingled in between will be extremely beneficial, as they keep the rain from washing the soil out, and also protect the under leaves from getting rotted off. Top-dressing and cleaning should be proceeded with at every possible opportunity, as this takes up a great deal of time, especially when a vast amount of leaves have been blown into the pockets. Some of the pockets will no doubt need repairing. After having taken out the old soil it is extremely necessary to see that a good drainage is made in the bottom, and then fill in with the aforementioned compost; and when planting see that the plants are so arranged as to blend with each other when in flower. This is a very important item, as so many of our alpine are so very much alike in colour, especially the mossy Saxifragas. In conclusion, I might just remark that mice are great lovers of some of the more tender alpine. They generally play the most havoc when the ground is snowed. I find the figure-four trap, set with bacon rind, a very good exterminator.—T. TELFORD, Lowther Castle, Penrith.

Visiting.

Now that the New Year has arrived and we look forward to fresh scenes and future experience, we might do worse than make up our minds to try and gain a more extensive knowledge by paying an occasional visit to some other garden. Where one is fortunate enough to get the Saturday half-day it could easily be made use of in a profitable manner. With a cycle, a bothy mate, and fine weather, nothing else is needed to spend a most instructive and enjoyable time. It is surprising how many friends one often finds when paying a visit. Sometimes an old bothy mate is found, and then quite a long conversation ensues, past experience is gone over, and the time passes all too soon. When the tour of inspection begins, thoughts of various kinds run through one's mind, most of them of admiration. A few may be of a criticising nature, but as a general rule some things in particular are cultivated better in some places than in others. When on a visit we are in a better position to observe and admire such things. Notes can be made, and questions asked, and these will go to make up a valuable experience, only gained oftentimes in this manner. I have had the pleasure of visiting several famous places, and hope in the future to visit many more. As a general rule, one is accorded a hearty welcome, and exchange visits result. From my experience, I find that gardeners are hospitable, and are pleased to welcome visitors. I trust that all readers of the "Domain" will take advantage of this form of adding to their experience.—ALBERT R. GOULD.

Publications Received.

L'Horticulture Belge, extracted from the "Tribune Horticole," November, 1907. 43, rue Vonck, Brussels.

Notes on the International Commerce, the Navigation and the Finances of Brazil, by Dr. Vieira Souto, Polytechnic School, Rio de Janeiro.

Transactions of the Massachusetts Horticultural Society for the year 1907; part 1. Contents: The Iris and its culture, by J. Woodward Manning; the possibilities of Peach growing in New England, by Adin A. Hixon; collecting orchids, by John E. Lager; the renovation of an old orchard, by George T. Powell; the home vegetable garden, by John W. Duncan; certain uses of the school garden, by Miss Anne Withington; forestry from a commercial standpoint, by Prof. F. Wm. Rane; the planting of streets and waysides, by John A. Pettigrew; some bacterial diseases of plants: their nature and treatment, by Prof. H. H. Whetzel; the gardens of Italy, by John K. M. L. Farquhar. Published at Boston, Mass.



Fruit Culture Under Glass.

PINEAPPLES FOR SUMMER.—The Queen Pine is the one relied upon for a supply of ripe fruits in the summer months, and I briefly noted the value of the winter fruiter a few weeks ago. My present note will only concern the summer supply, or Queen variety. The plants for the above purpose will have been at rest, that is, kept quiet during the past eight or ten weeks; and if these were wintered in their fruiting quarters, and the bottom heat is satisfactory, it will not be necessary to disturb the plants. At the same time the bottom heat now should not fall below 80deg, indeed 5deg to 10deg higher with an increased supply of moisture at the roots will be beneficial, as during the resting period the roots have been kept on the dry side. The day temperature should range 70deg to 75deg in fine weather, and 5deg to 10deg lower at night, allowing a liberal rise by sun heat. Ventilate carefully during the next few weeks; indeed, only a little air on the top ventilators is necessary. Close at mid-day and damp down freely. To avoid hard night firing in severe weather we have used dressed covers to great advantage over the glass. As soon as growth is active, the plants should get assistance in the shape of a good fertiliser. Many of our leading Pine growers prefer guano, mixed with tepid water, but do not overfeed at the start. Any plants that are at all loose at the collar should have a few bottom leaves removed and some turfy loam packed round to support them. Others in small pots that were not repotted and show signs of fruiting will benefit by top-dressing. For this purpose good turfy yellow loam, a little bonemeal, and soot will be suitable, the mixture made firm by ramming. Succession plants should be kept quiet for a little longer, but these I will refer to next month.

STRAWBERRIES.—Another lot of these plants should now be prepared for fruiting, and these will respond more readily to warmth than the earlier ones if they have wintered in cold frames or protected in the open. The surface soil should be cleaned over and made firm and good, top soil added if necessary, mixed with bonemeal. I am not greatly in favour of much or rich top-dressings at this time, preferring to feed freely later on. Those who have not a house or pit to devote to these plants will find them do well on shelves in fruit houses just started, but in introducing these from their winter quarters, care should be taken to see that the plants are free from mildew and green fly, and even red spider if they have wintered under glass. These pests can soon be got rid of by dipping in a sulphur solution before housing, or Gishurst's compound. Plants introduced some six weeks ago will now be showing their flower trusses, and should get all the light possible; 5deg to 10deg higher temperature may be given during the day. It is also a good plan to fumigate just before the flowering stage, as the fly is difficult to get rid of later. I have not named varieties. Royal Sovereign is still one of the best for general use; but the last few seasons I have had excellent results from the newer Laxton's Leader and Reward.—G. W., Brentford.

The Flower Garden.

LILIUMS.—Thousands of Lily bulbs are imported into this country annually from Japan. By far the greater number of these comprise three species—*L. auratum*, *L. longiflorum*, and *L. speciosum*, and their numerous varieties. Were it not for these annual consignments from Japan the bulbs of the three Lilies could not be grown in such quantities, especially for cut flowers. Although here and there in favourable localities one meets with them flowering freely year after year, generally speaking they do not thrive in our soil and climate. We must, therefore, look to imported bulbs to furnish us with the bulk of our display of flowers. Care is necessary with the bulbs to start them into growth. A number of the bulbs often show signs of disease on arrival, especially *auratum*, and unless kept in check till the bulbs have made good growth the flowers will be far from satisfactory. It is advisable to start them into growth in a cool frame, previous to planting them outside. When cultivated in sufficient quantities a frame may well be set apart for them. On the bottom place a layer of drainage, over this spread a quantity of fibrous peat or half-decayed leaves. This will prevent the 3in or 4in of light sandy soil from trickling down amongst the drainage. This should consist of equal parts peat, loam, leaf mould, and sand. Set out the bulbs over this 1in to 2in apart, gently pressing them into the soil so that about one-third of the bulb is covered. No water will be necessary, unless the position is a dry one, until the roots com-

mence to push out at the base of the bulbs. Keep the frame dark till growths push up from the top. Air should be given daily when the weather is favourable, as a close damp atmosphere must be avoided. Look over the bulbs several times a week and remove diseased scales, dusting the affected parts with sulphur and powdered charcoal. When well rooted, and having made about an inch of growth, they may be planted where they are to flower. As all the three Lilies named produce roots above the bulbs at the base of the stem they should be planted 4in to 6in deep.

SUB-TROPICAL BEDDING PLANTS.—Seeds of the kinds raised annually should be sown forthwith in heat. These include two or three species of *Eucalyptus*, *E. pulcherrima* and *E. globulus* being the best; Castor Oil (*Ricinus*), *Melianthus major*, *Aradia* (*Fatsia japonica*), variegated Maize (*Zea*), *Nicotiana glauca*, *N. glauca*, several *Solanums*, notably *S. Balisii* and *S. pyracanthum*, &c. The above are all quick growing subjects. Pot the seedlings off singly in small pots as soon as ready, and grow them on in heat. Shifted into larger size pots as necessary, good serviceable plants should be available by the beginning of June. The plants used in the sub-tropical garden last year, and lifted in the autumn, will require cleaning and overhauling. Young vigorous plants will need larger pots, for others top-dressing will be sufficient.

TRITOMAS (KNIPHOFIAS).—There are few more striking plants in the garden and pleasure grounds than the Red Hot Poker. Propagation is effected by division, February or early March a better time for this work than autumn. They are not plants which it is advisable to lift frequently and divide, usually taking a year to recover. *Kniphofias* delight in well-drained rich soil, and a sunny position. They are very beautiful planted in groups in the herbaceous border, masses along the shrubbery border or beds in the pleasure grounds. One of the best examples I have seen was a bed containing fifty large clumps on the bank of a lake. Seen from the opposite side, with the reflection in the water, the effect was magnificent.

BEDDING PELARGONIUMS.—There are almost invariably a number to propagate at this time of the year, either through the stock of a particular variety being limited, or due to loss of cuttings inserted in the autumn. The old plants lifted from the beds and potted up in October will furnish most of the cuttings. A few of the tops may be taken off the strongest of the young plants. This, however, must be done with care, or the latter may not have time to recover before bedding out time. Insert three or four round the sides of 4in pots or singly in 3in pots, and they will soon root on the shelf in a warm house. Potted singly into 4in pots, when nicely rooted they will come in useful for planting in front of those rooted in autumn.

DIGGING.—Beds and borders left vacant for sowing annuals and planting *Calceolarias*, *Violas*, *Pentstemons*, *Antirrhinums*, &c., wintered in frames, also beds of *Dahlias*, should be manured and dug as soon as opportunity occurs. They will then be in good condition for planting when the season for so doing arrives.—A. O., Kew, Surrey.

The Kitchen Garden.

DIGGING VACANT GROUND.—Any ground that has become vacant by the clearance of crops should be dug up roughly and deeply without delay, in order that it may be exposed to frost and drying winds. This work should be kept well forward. It is a great hindrance and bad management to have to wait for ground to be dug early in the spring before it can be planted. Every available inch should therefore be dug as soon as vacant, and, of course, be well manured where necessary.

PEAS.—A second sowing may now be made to follow those sown some time since. Catch the soil in a dry state if possible. Better wait for a week longer than sow while the soil is sodden and cold. Those sown in pots will by this time be through the soil, and should have all the air possible night and day when the weather will permit. No coddling should be allowed. The plants will stand a much better chance when they are planted out than if brought on in heat. A cold frame is much the best place for them at the present time, and a little frost will not harm them, provided the sun is not allowed to touch them until the frost has left the soil in the pots.

ASPARAGUS IN FRAMES.—A second batch of roots should be placed in a hotbed to follow those put in a month since. No vegetable is more appreciated at this season of the year than forced Asparagus. Every effort should be made to procure good large heads. This, of course, will depend on the quality of the crowns forced. However, a very great deal will also depend on the management of the plants when forcing. Careful airing is a great thing. To allow a frame to be shut up for a week at a time full of rank steam will not conduce to

the quality of the heads. They then become spindley and of bad flavour.

EARLY LETTUCES.—As soon as early sown Lettuces are large enough to handle they should be pricked off into a shallow frame which has been placed on a mild hotbed. Plant them as near the glass as convenient; use rich sandy soil, and water with tepid water at all times.

MANURE AND SOIL.—The manure heap should receive attention. In frosty weather, when the men are at liberty, it should be turned over and be thoroughly shaken to pieces. The outside is then turned into the middle of the heap. A good dressing of quick-lime will greatly assist the decomposition, as well as being of great value in other ways. All odds and ends of soil should be collected into a heap, and this may be carried on the whole year through. It is astonishing the amount of soil which will accumulate during the year, and if a bag or two of native guano can be mixed in with it, or a few bushels of old soot, a most useful compost will be the result. Such soil comes in handy for dressing the Onion bed, especially if the soil is heavy.—A. T., Cirencester.



Wintering Bees, Temperature, Ventilation, &c.

The most favourable temperature for bees during winter has been established at 40deg when wintered in the open. When the temperature gets lower than 40deg unrest and activity takes place, the bees breathe quicker, and flutter their wings to maintain the requisite degree of heat. The cluster expands about once a week, when the temperature is 40deg outside. The bees then fill their honey sacs, and then ensues a period of inactivity, which is longer at 40deg than at any other temperature, the cluster being almost still, in the same shape. When the outside temperature rises to 65deg the bees are able to fly.

The first essential to health in colonies is dryness of their hive both within and without, and whether they be made of wood or straw, whether skep or box hive, it will be impossible to secure that essential internally without perfect ventilation. Ventilation is the great safeguard against all the diseases that afflict bees in winter, and considering that almost all are originated while the bees are in winter quarters, too much attention cannot be paid to the subject.

It must be understood that ventilation does not mean the preparation of hives so that there shall be a constant draught throughout, but that they should be so constructed and arranged that the vapours generated by the bees shall escape without perceptible loss of heat. In hives where the vapours cannot escape upwards from the clustering bees, they disperse in the hive, and coming in contact with the cold walls will condense and form moisture, which, soaking into them, runs down to the floor boards, saturating them and rendering them colder than before, and quickly causing mouldiness of the outer combs, and making their contents unfit for the bees to consume.

Sufficient has been said of the advantages of the quilt and air passage above, both for bar and skep hives, and a caution is necessary to those who keep bees in skeps against covering them with impermeable material. Perfect dryness from outward causes can be secured by having roofs which well overhang the floor boards to prevent rain driving in and effecting a lodgement, but this object would be better achieved by having outer cases which enclose the hives underneath. Bees winter better with plenty of room under the cluster, viz., having plenty of room below the frames. This can be arranged at no additional cost to the apiarist, as a shallow super is just the thing to extend the brood nest to the right extent below the brood frames. The shallow frames have no need to be left in the super, which acts in a similar manner to the eke at swarming time, and in addition to providing the necessary additional air space, it also acts as a receptacle for the bees which die and fall from the cluster.—E. E.

Trade Catalogues Received.

Seeds.

James Cocker and Sons, 130, Union Street, Aberdeen.
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Alex. Dickson and Sons, Ltd., 55, Royal Avenue, Belfast.
F. C. Heinemann, Erfurt, Germany.
J. Lambert and Son, Trier, Germany.
M. H. Sinclair, 156a, Union Street, Aberdeen.



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DAISY (E. G. H.).—It is a form called by botanists "proliferous," and by gardeners "hen-and-chickens."

SOIL INFESTED BY GRUBS (G. S.).—Apply salt and guano at the rate of twenty bushels of salt and 5 cwt of guano per acre.

SEEDLING ECHEVERIAS (M. R.).—Echeverias raised from seed this spring can hardly be turned to account this season, but a fine stock may be so raised now for next year.

PAYMENT FOR TRENCHING LAND (T.).—Light soil, 16in deep, 10d. per square perch; medium soil, 1s.; and heavy soil, 14d. We have lately had an acre of medium soil trenched at the rate we quote, and the men, who were picked skilled labourers, by working hard earned a pound a week. Weakly or unskilled men could not have done so.

ORANGE TREE UNHEALTHY (N.).—Your Orange tree is probably infested with mealy bug. Wash every part of it, leaf and branch, and repeat the washing without loss of time upon the slightest sign of filth or insects upon it. Repeat now if it is much pot-bound, or apply a top-dressing of rich loam, and water occasionally with guano water or other liquid manure.

WOOD ASHES FOR POTATOES (Lex.).—You cannot have a better application for this crop. Sprinkle the ashes on the sets before covering them with soil. If used liberally the ashes will not only increase the weight of the crop, but the tubers will turn out cleaner than if they had no such dressing. A mixture of wood ashes and dry leaf soil is an excellent compost for placing in the drills with Potatoes.

PROPAGATION OF MENTHA PULEGIUM (J. B.).—Your plants upon which you have seen no leaves may not be dead. Place them in gentle heat and the matter will soon be decided. If they put forth growth make cuttings, which root readily in a lively temperature and soon afford other cuttings. They may also be increased by division of the roots. Although this plant is hardy it suffers from excessive wet during winter and early spring.

ASPHALTING BOTTOM OF A VINE BORDER (Idem.).—Yes, asphalt will answer well if it is necessary to place a substance impervious to roots beneath the border. It is, we may remind you, only requisite when the border overlies cold heavy clay or marl. Upon a gravelly or rocky substratum a concrete substance is an evil rather than a benefit. Take care that the asphalt slopes from back to front of the border, and that the drainage is thoroughly efficient.

MOULD ON CYCLAMEN CORMS (A. F. B.).—The mould will not injure the corms, as we apprehend it is a mossy covering consequent upon the plants having been kept very moist in an ill-ventilated atmosphere, the surface of the pots as well as the corms having the same green mouldy covering. Remove it from the surface of the soil with a piece of wood, and also from the corms if it comes away readily and may be done without injury to the skin, leaves, and flowers, which must not be damaged.

MRS. PINCE VINES FAILING (J. M.).—It is the shade of the Black Hamburg Vines in front of the Mrs. Pince Vines on the back wall that has caused them to fail. They may be removed at any time, and at their age no satisfactory results would follow planting them in another position. It will do no harm but good to the Hamburgs to remove the Vines from the back wall if you root them out by taking a trench out 3ft wide all along the back, the depth of the border, and fill up the opening afterwards with a mixture of good loam, decayed manure, and ground bones. We have watered Vines with weak manure water after the fruit had commenced colouring without injuring the flavour, but when the fruit is ripe pure water only should be applied to the roots.

PLANTING RASPBERRIES (T. W.).—Raspberry canes may safely be removed and planted at the present time, taking care that the roots do not become dry during removal. We should cut the canes down to within 18in from the ground. By so doing you would only sacrifice a small quantity of fruit, while you would secure much better canes for bearing next year.

HOT-WATER PIPING (G. C. S.).—The house, 9ft wide inside, with a walk 2ft 6in wide up the centre, would require two rows of 4in piping along both sides of the house, and these should be arranged on the side walls, these being taken up 9in to 2ft 6in higher than the ground or path level, and then diminished to 4in, this part built in cement. This will form a ledge 4in wide inside for the pipes to rest on. Dispose these one above the other. The bed walls should be the same height as the outside walls. On each of the two beds should be two rows of 4in pipes, fixed equidistant at 1ft height from the floor line, and just clear of them above, a covering of stone or slate slabs, which will leave about 1ft depth for soil. The piping may seem excessive, but it is not too much. Of course, you will have valves on the bottom heat pipes as well as the top, so as to regulate the heat as desired.

NAMES OF PLANTS.—Correspondents whose queries are unanswered in the present issue are respectfully requested to consult the following number. (J. E. S.).—The specimens were dried up and smashed. (P. W.).—Pothos sp.; perhaps a var. of *P. scandens*. (W., Langport).—The creeper is *Boussingaultia basilloides*; the fruit that of the Black Hickory, *Juglans nigra*. (T. S.).—*Eupatorium Weinmannianum*, Regel; *E. populifolium*, D.C. (W. C.).—1 and 2, *Davallia canariensis*; 3, *D. tenuifolia*; 4, *Adiantum* sp.; 5, *Asplenium bulbiferum*; 6, *Phlebodium aureum*. We do not name more than six specimens at once. (T. W.).—1, *Pteris longifolia*; 2, *Blechnum occidentale*; 3, *Polystichum aculeatum*; 4, *Adiantum hispidulum*.



Our Lessening Acreage.

Figures cannot be disputed; that is, if compiled from official sources. But we generally find the people who study figures, or in other words statistics, are few and far between. Yet still it is well sometimes to do a little balancing up and make a few enquiries as to the increase or decrease of the acres under cultivation. In case of a declining trade there is generally some good reason to be found to account for the decline. We do not, as a rule, give up a certain industry because we do not like the toil it entails, but simply because we find we are not working it so as to obtain a living profit; and we turn our attention (and our capital) to something whereby we hope to get a suitable return. We cannot blame Coventry for ceasing to manufacture watches, and for replacing watches by bicycles, which will also in time possibly be superseded by motors, which will give way to flying machines. True, the population takes a certain time to adjust itself to the fresh conditions, and we fear during the transition period there is much want and suffering. That seems inevitable.

There is another town we might instance: a town devoted to the manufacture of saddlery of all sorts. There the people have found that their trade is seriously affected by the motor craze, and they are turning their attention to other branches of leather manufacture, or rather into the conversion of leather into manufactured articles above and beyond saddles and bridles. No one blames; rather, if anything, they deserve praise, because their new work shows a wise adaptability to circumstances.

This is perhaps a little off the point, but what we want to be at is this: if other trades and manufactures are allowed a free hand to do the best for themselves, why is it that when we read of lessened production of agricultural commodities, everyone who has a stick proceeds forthwith to beat the unfortunate agriculturist? Surely he may be credited with the knowledge of how to conduct his business in its manifold forms to the best advantage? But no; he is rather looked upon as an ignoramus of the deepest dye.

We do deplore any falling off in the production of our food stuffs, but it is a question that would perplex a Solomon how to keep that production at a steadily increasing figure. We are constantly taunted with the fact that we produce less and less. It is easy to find fault, but are the suggested remedies

(many of them) at all practicable? We are sorry to read of the still lessening area of land under cultivation, and we find that during the last year, 1907, the crop areas were for the first time below fifteen million acres. The editor of "The Clarion" tells us that in Great Britain and Ireland we have 53,000,000 acres of cultivable land. What a stone he will have to fling at us now!

For the past thirty years the reduction has been going on at about a million acres per decade. Where is it going to end? Last year there were 89,000 fewer acres under wheat, barley, and oats. We know the autumn of 1906 was unfavourable as a seed time for wheat, but that the spring seed time was such that there should have been a good breadth of Lent or spring corn sown. It is suggested that difficulties in the distilling trade caused the acreage of barley to be curtailed in Scotland; but that reason cannot apply to England, unless indeed, as we have read in correspondence lately, other cereals and sugar are usurping the place of the time-honoured malt in the national beverage.

There is not that extra amount of permanent pasture that we should like to see, or that we had reason to have hoped might be in a measure taking the place of the corn crops. During the last thirty years there is only twenty-six per cent. increase in permanent grass, and that is not enough. There is, however, one very bright spot, and that we find in the record of the number of cows and heifers—the largest yet shown. This points to a brisk milk trade, and we are told by those who are in the "know," that the milk trade is yet in its infancy. A vigorous infant we hope. Where are the further developments coming in? We think we can answer that question in two ways. The nation, as a nation, has begun to grasp the fact that milk as a food is of untold value; that our little children, as an asset of this great nation, are of untold value, and that their well-being is dependent on an ample supply of good sound milk. We demand the milk in far greater quantities, and there are hosts of clever men up and down the country engaged in grading up our cows so that the animals of the future shall produce a far greater quantity of rich milk than has ever been seen before. We have only to read the milk records of some of the noted herds to see what can be done, and what will be done as we get older and wiser.

There is another point where we are breaking covert, and that is we are producing more fruit, or rather preparing the way for its production. During the last decade we find that 12,000 additional acres have been planted with small fruit (that will be realising now), and 25,000 acres are devoted to orchards; some of that acreage also will be producing fruit. We take these facts as indicative of a tremendous step in the right direction.

The next item in the statistics is a painful one, and no right-minded man can but deplore the serious falling off in the number of horses. There is a decrease of 126,000, and the number is smaller than it has been since 1900. We called attention to the fact some time ago that the foaling season of 1907 saw a deficit of 10,000 foals. We do not take into account at all the statement that the cold spring and summer of last year caused immense losses among young foals. They are not exotic animals, and the men who own foals can pretty well take care of them. Of course, there may have been, and possibly were, a few odd cases of inflammatory chills, but nothing to be classed as an epidemic. The motor business has dealt a serious blow to the breeding of coach-horses, and there is a lack of encouragement given to the breeders of what should come under the head of army remounts.

As to the class of horses from which army remounts should be bred there is a wide difference of opinion, but on broad lines we might say there must be blood and bone. A blood horse has always a good heart, but he must have good legs to carry his good heart out of danger! It is rather the fashion now to deride the Hackney type, but a Hackney, well bred and big enough, is hard to beat.

We are glad to find that during last year many rogues have been run to earth who, with skill worthy of a better cause, were adepts in the art of blending fats other than butter with that necessary article of daily use. The dairy farmer has enough to contend with in open foes, and it is well that just punishment should be meted out to the hidden ones when exposed. We see there is a new form of adulteration. Margarine is not escaping, and it is blended with paraffin wax and potato. The paraffin wax, we believe, is harmful to the human system; distinctly so. Of potatoes, perhaps, we cannot say the same, but at any rate even potatoes are cheaper than margarine, and the customer would probably prefer to do the mixing himself.

There has been a falling off in the potato acreage of Great Britain, and consequently a diminution in the amount of tons. Happily there is compensation here, for the prices rule higher than they have done for some time. We hear of £5 being not only asked, but given, and so far no foreign supplies of any material quantity have come to our shores to literally take the bit of profit out of our pockets. We hear the German crop

is not only scanty, but also of poor quality, and we feel more or less thankful.

With a good turnip crop (we include swedes here), we have much to be thankful for. We are constantly being told that this particular form of root-crop does not pay for the trouble and expense it involves, but we do know that a winter without such a crop is an awful time, both for stock and for our pockets. We have gone through years when, with a large head of stock and sheep, the crop has been practically nil, and we never want to repeat the experience.

Mangolds show a decided upward tendency, and we hope "upwards" will be the motto till all really mangold land is cropped. We certainly do get crops off land not quite suitable for the purpose, but when the land is right, and the cultivation first class, as it always should be, the bulk of the crop is something to make even the most downhearted smile.

We alluded to the growth of the milk trade, and we do most sincerely hope that this growth will be fostered, rather than thwarted, by legislative enactments. Sometimes it would almost appear that those who rule us must be suffragettes; as the regulations really would do credit to an over-anxious grandmother! The farmer is expected to keep an immaculate cow-house, while the retail dealer, whose premises leave much to be desired, often goes unrebuked and meets with no interference. The public has every right to expect wholesome milk, but the saddle is often put on the wrong horse.

Work on the Home Farm.

We are having changes from frost to rain, and then back again to frost, and the general result is very little progress as regards work. Ploughing behind the sheep, which is work we always pay special attention to, has to wait; but we can keep the ploughs going on clover lea, which has a covering of manure on it. There is still more manure in the yards to be brought out when severe frost holds, and roads are good.

There is plenty of time now to get all hedging and gapping done. In some parts where hounds may cross a farm three or four times a week, there is little encouragement to the farmer to keep his fences in order, and therefore he has to delay the work until March or April, when there is so much pressure of other work. Most farmers are good sportsmen, and do not object to the damage other sportsmen do, but, unfortunately, the damage is chiefly done by unsportsmanlike followers of hounds, who would be more at home in motor cars, and therefore restricted to the hard high road.

The sheep had one very bad day this week. The rain and thaw reduced the fold to a quagmire, and the poor animals had to be allowed a happy and comfortable two days' holiday on grass. Then frost returned again, and they went back to their turnips, but they were frozen very hard, and could be of no great feeding value. They will be treated to pied stuff next week, and no doubt will appreciate it.

We see a few young lambs about, and the cold weather will not hurt them if they are well housed and fed. There is a little extra labour, or rather attention, required in producing Easter lamb. A man needs a personal interest in his sheep if he is to sit up at night to look after a dozen or twenty old ewes which are lambing early. A shepherd to sit up with two hundred may easily be found; but only an owner will look properly after the birth of these early lambs. Yet we know one such who lost not only a fine ewe, but two fine lambs, through oversleeping himself last week.

Very few potatoes are being moved, yet trade seems to be little, if anything, better. Pig potatoes are very scarce, and some feeders are using swedes for their growing stores; but swedes will not be plentiful in March, and we cannot see where good mutton will be found in April.

For Future Farmers.

The Board of Education have issued a timely pamphlet containing "Suggestions on Rural Education," with specimen courses for schools and classes of various grades and types. The production is, in fact, a revision of other pamphlets published in 1901 and 1902, and now brought up to date by Mr. T. S. Dymond, one of his Majesty's inspectors and rural adviser to the Board. It is satisfactory to learn from Sir Robert Morant's introduction that rural education has made great progress during the past few years. "In the case of elementary schools, not only does the ordinary work of the schools show marked improvement, but practical subjects, such as gardening, woodwork, and domestic economy are now more widely taught, and a proper conception of the aims and methods of Nature-study is fast gaining ground." While past efforts are thus proving fruitful, and, by the way, must receive considerable encouragement from such measures as the Small Holdings Act, the Board deprecate undue haste in the matter of rural education. The new pamphlet is therefore only intended as suggestive. But taken entirely from this point of view, it is a valuable contribution to a subject of growing importance, both for the sympathetic spirit in which it is written and the wide range it covers—from rural school to agricultural college.

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Journal of Horticulture.

THURSDAY, FEBRUARY 6, 1908.

The Weather of 1907.

IN its weather there is no doubt that the past year has been of a very remarkable character. At times, conditions have been such that it has seemed scarcely possible that the season could, from an agricultural point of view, be anything but disastrous. Then, however just when the outlook for the chief crops has been of the blackest, changes have occurred that have brought the most perfect conditions that could be wished for.

For instance, when the first week of July had passed without the summer having provided any settled weather whatever, there was apparently little hope of saving what had promised to be an excellent crop of hay. But at last came the long looked for change, and after three months of wet and cold, a spell of anti-cyclonic conditions set in which lasted from the 10th to the 21st of the month. During this period the weather was perfect, and although it was all too brief, it did much to remedy matters.

Again, although, taking our islands as a whole rainfall was deficient during August, the weather throughout that month was unusually cold and sunless, and at its close there appeared little chance of the corn being either satisfactory in quality or saved in good condition. But September changed all this with wonderful weather, its constant sunshine drying off the grain, and giving farmers ample time for the ingathering. Taken altogether, therefore, although the spring and summer months left so much to be desired, the season as a whole can be looked back upon with a certain amount of satisfaction.

Naturally in a short article of this description it is not possible to give more than a superficial account of the rainfall of the year; but its general distribution over our islands will be gathered by a study of the following table, which gives the

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monthly and yearly falls, and the differences of the latter from the average, at nine carefully selected stations:—

1907.	Aberdeen	Leith	Liverpool	Valencia	Selly	Jersey	Bristol	Oxford	London
	ins.	ins.	ins.	ins.	ins.	ins.	ins.	ins.	ins.
January	1.63	0.91	0.99	2.71	0.83	1.57	2.11	0.63	0.70
February	1.54	0.93	1.33	4.02	1.67	1.35	1.81	1.13	0.99
March	1.32	1.78	1.54	2.46	0.83	0.70	1.14	0.85	0.78
April	1.35	1.23	1.44	4.07	3.26	2.36	3.95	2.24	2.83
May	3.48	2.76	2.64	4.27	3.25	2.35	2.61	2.45	1.67
June	3.78	2.57	4.71	4.56	1.23	2.02	3.23	2.81	1.87
July	1.40	2.75	1.31	1.78	1.11	1.97	2.72	3.37	1.25
August	2.27	4.07	2.94	5.67	1.08	0.60	2.29	1.41	1.61
September	1.23	1.77	0.56	2.65	2.00	1.23	0.62	0.68	0.53
October	5.07	7.21	4.19	6.25	6.09	6.76	5.33	5.20	2.26
November	2.13	0.96	2.10	3.64	3.21	3.21	3.11	2.30	1.81
December	3.47	3.70	1.73	8.70	4.59	3.21	6.23	3.84	3.66
Total falls ...	23.67	30.74	25.13	50.78	29.26	23.63	35.20	26.91	19.52
Averages	30.70	23.90	28.90	56.50	33.70	34.20	35.06	25.00	24.40
Differences	-2.03	+6.94	-2.77	-5.72	-4.44	-5.57	+0.14	+1.91	-4.83

These figures show that the year, in regard to its rainfall, can be divided into four distinct and equal periods. For the first three months, taking our islands as a whole, a very decided deficiency is shown. Then follows—during what is usually the driest time of the year—an excess of rainfall throughout April, May, and June. After this comes another dry period, lasting to the end of September, although not of so decided a character as that of the winter months; this again being succeeded by an excess lasting to the close of the year.

Bright sunshine for the year was generally deficient. Its duration and difference from normal over the various districts into which our islands are divided will be seen from the following table, which also shows the details of rainfall for the same districts:

District.	Duration.	Sunshine		Rainfall	
		Hrs.	Difference from average.	Total Fall.	Difference from average.
Scotland, N....	1,118	...	+ 9	50.62	...
Scotland, E....	1,809	...	- 17	31.91	...
England, N.E....	1,483	...	+ 37	24.36	...
England, E....	1,569	...	- 8	21.48	...
Midlands	1,397	...	- 5	23.55	...
England, S....	1,634	...	+ 37	26.61	...
Scotland, W....	1,247	...	- 113	51.08	...
England, N.W....	1,370	...	- 12	36.61	...
England, S.W....	1,519	...	- 41	41.05	...
Channel Isles ..	1,765	...	- 132	30.42	...
Ireland, N....	1,220	...	- 60	40.41	...
Ireland, S....	1,330	...	- 117	38.97	...

Mean atmospheric pressure for the twelve months was slightly above the average over England, but a little below in Scotland. The monthly means, and those for the year at the stations for which the rainfall values have been given, are as follows:—

1907.	Aberdeen	Leith	Liverpool	Valencia	Selly	Jersey	Bristol	Oxford	London
	ins.	ins.	ins.	ins.	ins.	ins.	ins.	ins.	ins.
January	30.089	30.153	30.304	30.371	30.380	30.391	30.364	30.350	30.317
February	29.805	29.851	29.895	30.075	30.072	30.090	30.052	30.045	30.010
March	29.925	29.969	30.131	30.190	30.234	30.262	30.224	30.199	30.176
April	29.753	29.735	29.778	29.822	29.793	29.808	29.791	29.802	29.764
May	29.847	29.825	29.857	29.799	29.810	29.874	29.869	29.835	29.864
June	29.665	29.673	29.795	29.588	29.614	29.982	29.367	29.886	29.864
July	29.970	29.964	30.026	30.039	30.055	30.065	30.043	30.064	30.028
August	29.773	29.795	29.944	30.008	30.059	30.103	3.013	30.024	29.992
September	30.037	30.050	30.122	30.094	30.080	30.107	30.139	30.152	30.112
October	29.617	29.582	29.614	29.593	29.583	29.665	29.616	29.668	29.651
November	29.896	29.892	29.953	29.949	29.939	29.987	29.981	30.005	29.966
December	29.630	29.622	29.697	29.608	29.710	29.805	29.751	29.769	29.760
Means	29.834	29.843	29.935	29.951	29.939	30.013	29.976	29.937	29.959
Avrg. means	29.833	29.853	29.930	29.952	29.954	29.981	?	29.974	29.958
Departures from avrg.	-0.004	-0.010	+0.005	-0.001	+0.015	+0.029	?	+0.013	+0.001

These figures show a general excess of pressure during January, March, July, and September; and a deficiency for April, the two following months, October and December. Of the remainder, the values for November agree closely with the average, while February and August give an excess over our southern districts, but a deficiency in the north. The greatest

pressure reported over our islands at 8 a.m. during the year was 31.06in at Aberdeen on January 23, and the least 28.34in at the same station on January 2—an extreme range of 2.72in.

The unusual height attained by the barometer towards the end of January was due to a remarkable anti-cyclone, which covered the greater part of the Continent between the 20th and 26th. During its prevalence pressure attained an unprecedented high level over Europe, the maximum readings reported being 31.489in at Riga and Vindan on the 23rd; this reading being nearly two-tenths of an inch above anything previously recorded west of the Ural Mountains. In regard to our own islands, only on six previous occasions during the last 134 years have readings been observed reaching 31.00in.

The mean temperature for the twelve months closely approximated to the average in most districts, but shows a decided deficiency in the west and north-west. The following table gives the mean for each month, and also for the year, at nine stations distributed over our islands:—

1907.	Aberdeen	Leith	Liverpool	Valencia	Selly	Jersey	Bristol	Oxford	London
	deg.	deg.	deg.	deg.	deg.	deg.	deg.	deg.	deg.
January	37.7	39.9	39.8	44.1	45.0	42.5	38.5	38.3	39.4
February	33.1	33.1	37.1	42.7	43.6	40.5	37.5	37.3	36.5
March	42.8	44.1	43.7	47.8	47.8	46.8	45.5	44.1	44.5
April	44.1	45.6	45.7	46.7	48.1	48.9	47.5	47.0	47.4
May	47.6	48.4	50.4	50.2	51.9	53.7	53.6	52.4	53.3
June	51.9	53.5	54.1	53.7	55.0	56.9	56.3	55.8	57.5
July	54.5	56.1	57.5	58.3	60.0	60.6	60.3	58.6	59.6
August	54.4	56.2	57.2	57.8	60.3	61.6	58.0	59.2	60.8
September	54.2	54.7	57.3	58.7	59.9	61.9	59.0	57.8	59.3
October	48.8	49.0	49.7	50.3	53.7	54.7	51.2	50.3	53.5
November	42.5	44.2	44.6	46.3	50.6	49.8	44.3	44.4	46.1
December	39.6	40.3	40.7	45.1	48.3	46.2	41.2	41.3	43.7
Means	46.4	47.5	48.2	50.2	52.0	52.0	49.5	48.9	50.2
Avrg. means	46.3	47.9	49.9	50.9	52.3	52.1	49.6	49.0	50.1

Departures from avrg. +0.1 -0.4 -0.7 -0.7 -0.3 -0.1 -0.1 -0.1 +0.1

These means are those of the maximum and minimum readings, and are not corrected for diurnal range. Of the various months, March, September, October, and December were warmer than usual in all districts. On the other hand, the temperature was continually deficient throughout June, July, and August. Of the remaining months, November was warm over England and the east of Scotland, but cool elsewhere; while January, February, April, and May show fairly average values. The maximum temperature of the year was 56deg at Lairg on July 16; and the minimum 5deg at Balmoral on February 1—an extreme range of 51deg.

Taking the months in detail, the cold Christmas weather of the preceding year passed completely away with the advent of January, the greater part of which was remarkably mild and open; towards the close, however, bitterly cold weather prevailed. February proved the most wintery month of the twelve, and although, upon the whole, of an exceedingly quiet character, was noteworthy for the prevalence, from the 19th to the 21st, of one of the severest general gales experienced over our islands for a long while past. March brought most favourable weather, and closed amidst a wealth of sunshine, but unfortunately this was to be the last serious appearance of the sun for over three months; April, May, and June being almost continuously cool, wet, and sunless.

A similar type of conditions prevailed well into July, but happily the second week brought a change to brilliant sunshine, although unfortunately unsettled weather again set in towards the close. August proved dull, cold, and sunless, but summer came at last with the succeeding month, September bringing marvellous weather, no rain whatever falling in some districts after the 5th. October brought a complete reversal of the atmospheric conditions, rain setting in on the first day and falling almost daily throughout the month. November proved a fairly normal month in respect to rainfall, but the temperature in most districts kept well above the average. This was also the case during the greater part of the concluding month of the year; but, as in 1906, a great change took place at Christmas, the year concluding amidst most wintery weather, heavy snowstorms visiting our extreme south-western districts, while bitterly cold easterly winds prevailed generally.

Thunderstorms were very frequent during the spring and early summer months, and were accompanied at many stations in April and May by violent hailstorms. Snowstorms during the year were as a rule unimportant. The most noteworthy occurred over the south-eastern counties on April 7, and over our extreme south-westerly districts on December 28.

Displays of aurora borealis were observed generally over our islands on February 9, and at various northern stations on February 11 and 13; September 10, 11, and 12; October 27;

November 5 and 18; and December 11. The display of February was of unusual brilliancy, and coincided with the largest magnetic storm recorded at Kew since October 31, 1903.

Taking the year as a whole, gales were not so prevalent as usual. The most serious storms occurred from February 19th to the 21st, and on the 9th, 13th, and 14th of December. The storm of February was one of enormous extent, reaching our shores from the westward on the morning of the 19th, the centre of the disturbance passing across the north of Scotland during the following night, when a minimum reading of 28.13in was recorded at Nairn at 7 p.m.—the fall at that station from 2 p.m. to 7 p.m. amounting to 0.73in, a rate of 0.15in per hour. On the morning of the 20th the system was of enormous extent, the barometric readings being below 30in over nearly the whole of Europe.—H. H. HARDING, F.R.Met.Soc., Bristol, January 25, 1903.

The great majority of the existing gardeners' mutual improvement societies are less than twenty years of age. Many are only ten years old; and year by year new associations come into being. It is rather curious this sudden multiplicity of these debating societies. We recall the old "lodges" and florists' societies, whose headquarters were generally at some inn, and where the local enthusiasts exhibited and discussed the latest Tulip or Auricula or Polyanthus; or perhaps the newest big Gooseberry! But the recent marked upspringing of gardeners' societies can only be due to the far wider knowledge and practice of gardening. It is also more than ever likely that

the smaller towns and horticultural centres will each be providing a gardeners' society, since the Royal Horticultural Society has, with munificent generosity, resolved to support and assist such adventures. By its recent promulgation it offers to furnish new or struggling associations with well-prepared lectures, some of them illustrated lectures, by thoroughly qualified practitioners. The local body is required to subscribe a small sum, not exceeding a few shillings, to the Union, and in return receives, as we have said, the use of lectures on subjects of the widest interest. Further particulars of the scheme, as at present prepared, may be obtained from the secretary of the Royal Horticultural Society at Vincent Square, London, who will also send suggestions for the establishment and constitution of gardeners' debating societies. It would be unwise, as some professionals have proposed, to exclude amateurs from such gatherings. It is true that the members thereof are mainly professionals; but that does not necessarily debar the amateur. There are now infinitely more wealthy amateur gardeners who employ trained men than there were a quarter of a century ago. It is a good sign that debating societies are increasing. By their means a better tone is set in gardening, and information that is comparatively slowly assimilated from books and papers, is easily obtained by the proxy method, and by the discussions. One man works up a subject: the others listen and profit. Particularly is it advantageous to the members when a recognised master-hand deals with a subject. He is chosen because of his ability to teach, and if he be conscientious he cannot fail to enlighten and improve. The successful societies are those whose programmes are carefully compiled, the subjects being varied, though not necessarily horticultural.



Odontoglossum hybridum Bingleianum.

Baron Sir Henry Schröder (gardener, Mr. H. Ballantine), The Dell, Egham, showed this excellent flower at Vincent Square (R.H.S.) on January 24, when it received a first class certificate. The parentage was unrecorded. This is a choice flower, beautiful and refined. It is of large size, some 2½in wide and 3½in deep. The form is close and good, each segment being broad, evenly and wavily barred with rich brown over pale yellow. The lip has a white apex and rich golden centre. The petals and sepals are nicely waved and slightly crumpled at the apex.

Cultural Notes: The Cool House.

The most popular orchid at the present time is *Odontoglossum crispum*, especially the pure white forms, which are still very scarce, despite the fact that thousands of crispums are annually imported to this country. Many will now be pushing up their flower spikes, and if slugs are troublesome, a small band of cotton wool placed round the base of the bulb or spike will prevent them from doing much damage; but we have the roots to consider, so saucers of bran, Cabbage-leaves, and old flowers, should be laid between the plants each night, and then be examined the following morning. The marauders can then be destroyed.

O's *Pescatorei* and triumphans are both useful orchids, and are beginning to show signs of flowering. *Oncidium olivaceum* (cucullatum), should occupy a light position, and the *Masdevallias* will be best at the warmest end, with *Pleurothallis Roezli* and *Restrepias*. The quaint *Stenoglottis longifolia* will soon be active; then any repotting can be done if it was passed over last year, because better results are secured the second season, following potting operations. The roots are tuberous, and enjoy a mixture in equal parts of fibrous loam and leaf mould, with a



Odontoglossum hybridum Bingleianum.

sprinkling of sand and finely broken crocks. Fairly deep pans, 6in to 8in in diameter, prove the best receptacles, and should be filled with 2in of drainage.

Stenoglottis, which are natives of S. Africa, remind one somewhat of our own *Orchis maculata*; and if five to seven roots are placed at equal distances apart in one pan, then the effect produced is quite pleasing to those who can appreciate an orchid for its flowers alone. When in full growth plenty of water is needed; but after the spikes are removed the plants gradually go to rest, although they are not quite deciduous; therefore it is obvious that the supply of water must be reduced, but the soil should still be kept in a moist condition, remembering that either extremes will cause the tubers to decay. In addition to the *S. longifolia* already named, there is a white variety known as *alba*; also *S. fimbriata*. Both are weak in constitution, and require more care than the former, which is very floriferous and of easy culture.—T. ANSTISS.

NOTES

NOTICES

Mr. Joseph Cheal.

We regret to learn that Mr. Joseph Cheal, of Crawley, met with a rather serious accident on Saturday, and may be incapacitated for some time.

Appointment.

Mr. E. T. Lawrence, who was recently foreman to the late Hon. Mark Rolle, at Becton, Devon, has been appointed head gardener to the Hon. Mrs. Tremayne, Sydenham House, Lew Down, R.S.O., Devonshire.

Proposed Black Country Horticultural Society.

Steps are being taken to form a horticultural society for the West Smethwick, Langley, and Warley districts. Arrangements are being made to hold a meeting at an early date to consider the matter. A good deal of interest is being roused in the question, and it is also thought that the subject of small holdings and allotments in the district will be brought up.

Cottage Gardening for Wales.

Mr. D. E. Jones, His Majesty's inspector of technological instruction and evening schools, with Mr. D. Thomas, His Majesty's inspector, Aberystwyth, attended a meeting of the Cardiganshire Education Committee at Lampeter on Thursday, and suggested various way by which evening schools might be improved in the county. Mr. Jones commented upon the absence of cookery instruction at the evening schools, and suggested that cottage gardening might be included with advantage in the curriculum. It was an extraordinary fact that in no place in Wales was cottage gardening taught at evening classes, and in an agricultural county like Cardigan the absence was to be deplored. They should also endeavour to prevent the lapse which now generally occurred at the time children left the elementary schools, when they loafed about the streets, leaning against lamp-posts, and smoking cigarettes. He suggested that in cases where school fees were now charged they should be remitted, as an encouragement to the children to pursue a course of study. After a private discussion, the clerk was authorised to draw out a memorandum on the lines suggested by the inspectors for distribution among local managers and head teachers.

Narcissus Trade in the Scillies.

The Scilly Isles, where the Narcissus harvest has just begun, exported more than a thousand tons of cut flowers during 1907—which compares with 850 tons despatched in 1906. The largest quantity sent by steamer from Scilly to Penzance on a single day was between thirty and forty tons. For the carriage of the flowers to London the Great Western Railway have designed a special truck capable of holding 2½ tons of cut flowers, since the blooms occupy a very large space in proportion to their weight. Altogether, says a writer in the "Yorkshire Daily Post," with steamer freight and railway charges, it costs the Scilly growers £6 10s. per ton to get their flowers to London, and last year the Great Western Railway made £6,500 from this source. The great expense of carriage has a tendency to extinguish the trade in the commoner varieties of flowers. Then the quay dues of Mr. Dorrien-Smith (the "King") at 10s. a ton account for another £500. Arums are grown at Scilly in large quantities, as well as Jonquils and Narcissus, and command good prices, especially when the time of the maturity of their blooms and of Easter happen to coincide. These flowers are grown in trenches so as to escape the violence of the winds. I understand that at Treeco Mr. Dorrien-Smith's gardener has glass shelters mounted on wheels, which can be run in over the beds of Narcissus when the time of the opening of the buds approaches. This device is systematically used in the Azores for Pineapples in the third year of their existence, when the question of beauty of appearance, in view of their approaching consignment to the great markets, is of the first importance.

The Gardeners' Royal Benevolent Institution.

Lord Aldenham will preside at the sixty-ninth anniversary festival dinner in aid of the funds of the institution, at the Whitehall Rooms, Hotel Métropole, on June 24th next.

Lord Avebury.

Lord Avebury is to be the new president of the Royal Microscopical Society, and at the March meeting he will deliver an address on "Seeds, with Especial Reference to British Plants."

County Technical Laboratories, Chelmsford.

A two weeks' course, to be followed with a six weeks' course in dairy work, commenced on Monday, February 3, at the Dairy School, Chelmsford, with sixteen students, including three from Hertfordshire and one from Surrey. The three weeks' winter course of horticulture commenced at the Technical Laboratories on Monday, February 3, with sixteen students, including one from Norfolk.

Sussex Weather.

The total rainfall at Abbots Leigh, Haywards Heath, for the past month was 1.84in, being 0.37in below the average. The heaviest fall was 0.96in, on the 7th (the disastrous snow-storm). Rain (or snow) fell on eight days. The maximum temperature was 53deg, on the 27th; the minimum, 16deg on the 6th; mean maximum, 41.04deg; mean minimum, 31.05deg; mean temperature, 36.04deg, which is 1.56deg below the normal for the month. The snow storm on the morning of the 8th was remarkable for its suddenness, and the damage done in the short time it lasted. It came down very soft, and clung to everything, bringing down many telegraph poles in the district, and doing some little damage to trees and shrubs. A whole week of fog occurred round the 22nd.—R. I.

Liverpool School of Tropical Medicine.

Steps are being taken to raise a fund, estimated at £10,000, to found a Dutton Memorial Chair in Tropical Entomology and Arachnology in the above school. The president and committee of the school have prepared a circular, which is sent out from B, 10, Exchange Buildings, Liverpool. Dr. Joseph Everett Dutton (whose name the Chair will commemorate) was born in Cheshire, and was educated at the King's School, Chester, and subsequently at Liverpool University. During the years spent in Africa he did much valuable work, and by describing *Trypanosoma gambiense*, the parasite since recognised to be the cause of "sleeping sickness," gained the highest distinction for himself, and for his school a world-wide renown. If the Chair is founded, it is proposed that Mr. Robert Newstead, curator of the Grosvenor Museum, Chester, be elected to fill it. Mr. Newstead spent over twelve years as a gardener.

Small Holdings.

The Small Holdings Act is now about three weeks old, and I am glad to say (observed Lord Carrington in a recent speech) that in every case the county councils, without whose co-operation we should be powerless, have taken up the Act in a workmanlike and conscientious manner, and many independent landlords have helped us very much. "I have had applications from forty-five counties. I have not had time to add them all up, but I will take eight counties, and give the amount of land asked for for small holdings in each:—

Oxford	10,000
Wiltshire	6,000
Cambridgeshire	5,000
Worcestershire	5,000
Huntingdonshire	5,000
Gloucestershire	4,000
Bucks	3,000
Herefordshire	3,000
	41,000

"For these 41,000 acres," said Lord Carrington, "there were 2,713 applicants. In addition to these there were 307 applications for 12,000 acres of the Crown Lands—in all eighty-three square miles of land."

Weather in Perthshire.

For some weeks the weather has maintained the same variable cast, scarcely two successive days being alike. There has been but little frost, but a good deal of rain. On the 1st and 2nd inst. 6deg and 5deg frost were registered, both followed by fine days and dull evenings. Some nights have been extremely boisterous, but the wind generally fell as morning broke. In the end of last week, three days' continuous snow was reported from the northern counties. Monday, like several other days of the past fortnight, seemed like a day in advanced spring.—B. D., S. Perthshire.

Croydon Gardeners' Society.

This society made a capital opening of the new season on Wednesday week, when Mr. R. Edwards, Beechy Leys Gardens, Sevenoaks, read a paper on hardy fruits, or perhaps what may be described as part of that extensive subject, for he confined his remarks to Apples and Pears. To show the character of the various Apples he staged seventy-two varieties, all of which were excellent. The members joined in a brisk discussion, and terminated the meeting with a warm and hearty vote of thanks to Mr. Edwards. Besides Mr. Edwards' exhibit there was a fine seedling Amaryllis, staged by Mr. H. Peckham. Mr. M. E. Mills put up a vase of white Chrysanthemums, Nellie, and a fine pot of the old Cypripedium insigne; and Dr. Jackson sent three dishes of Pears, all of which received the meeting's vote of thanks.

Midland Counties Sweet Pea Society.

The schedule of this newly formed society is now to hand, and we take this opportunity of complimenting the committee on their enterprise. We note with pleasure that the Right Hon. the Earl of Plymouth is president of the society, whilst among the vice-presidents and on the floral committee we find many noted enthusiasts, including several names connected with the National Sweet Pea Society. The society's first show is to be held in Wolverhampton on July 29, and on totalling the prizes offered, we find they amount to £70. In addition to this, several medals will be awarded. This will undoubtedly attract the leading exhibitors from all parts of the country. The hall where the show is to be held is a fine one. The schedule also contains the rules of the society and regulations for exhibition. Copies may be obtained on application to the hon. secretary, Mr. Owen F. Trott, 104, Waterloo Road, Wolverhampton.

Manchester Notes.

According to an account of the Manchester Horticultural Improvement Society in the "Manchester City News," this body was founded nearly thirty years ago, the originator being Mr. Bruce Findlay, for a long period secretary of the Manchester Royal Botanical and Horticultural Society, and curator of the gardens at Old Trafford. The inaugural meeting was held in one of the lower rooms of the old Town Hall, King Street, now the Central Public Library, in 1879, under the presidency of the late Dr. John Watts, who in his day did such signal service in a variety of ways for the cause of education. The society set out promisingly on its career, and has steadily gone on with gathering strength till the present moment. Mr. Findlay was its first president, and for some years Mr. W. Swann discharged the duties of honorary secretary. Then Mr. W. B. Upjohn and Mr. C. Paul jointly held the latter office. For the last ten or twelve years Mr. Paul, head gardener at the Old Trafford Gardens, has continued singly to perform the secretarial work. Throughout, the society has had only two presidents. Mr. Findlay guided the affairs with high intelligence and industry, so characteristic of the man in all his undertakings, till his death in 1896, when he was succeeded by Mr. James Brown, of Longfield, Heaton Mersey—who, lover of flowers as he is, and noted far and wide as a cultivator of Roses, makes a model president. Among those who have been closely associated with the society almost from the outset may be mentioned, to single out a few, Mr. F. Robinson, most assiduous of vice-presidents; Mr. Robert Tait, treasurer for many years, in which office he has just recently been succeeded by his son, Mr. Robert Tait, junior; Mr. Upjohn, Mr. Paul, and Mr. Harry Driver. Prominent among the men, no longer with us, who evinced a friendly interest in the society were Messrs. Joseph Broome, Samuel Barlow (Stakehill), Dr. Ainsworth, Griffiths Hughes, and Thomas Costley.

**The Foreign Apple Trade.****REMARKABLE PREDICTION.**

The following notes from the Covent Garden correspondent of the "Newcastle Chronicle" are of great interest:—The huge slump in prices of imported Apples has caused great concern in fruit trade circles. At the present time American Ribstons can be bought in any quantity as low as 9s. 6d. a barrel of three bushels, wholesale. This is the lowest price ever touched for these Apples. Considering the immense stocks available in this country, at least 500,000 bushels of imported fruits being warehoused just now, a decline in values is not to be wondered at. However, when Ribstons are disposed of as low as 3s. a bushel in January, the shippers of these fruits lose large sums and are disheartened.

What is the actual cause of this startling slump in price? As the result of special interviews with three of the leading importers in Covent Garden market we learned that the increasing importance of the British grown Apple is the cause of the trouble. "If things continue as they have done during the past ten years," said one of these men to us, "in another ten years' time the British Apple will dominate the market, and the imported fruit will only be wanted in seasons of scarcity." The possibility of such a contingency is accepted by many dealers. Whilst imported Ribstons are offered as low as 3s. a bushel, home-grown Wellingtons command as much as 12s. a bushel, and Cox's Orange Pippins realise from 12s. to 15s. a half bushel. Even the famous American Newtown Pippin can be bought as low as 8s. a bushel box! "The future of the Apple trade of this country, I tell you," exclaimed a Covent Garden auctioneer, "is completely in the hands of the English Apple producer; and this fact, serious as it is to foreign shippers, must be recognised."

The public eat more Apples than ever. The imports for the year are about 10,000,000 bushels, and the home production in some seasons is the same. The consumption of 20,000,000 bushels of Apples per annum is remarkable. Still the consumers have come to learn that the English Apple, from a chemical standpoint, is beyond competition, and is cheaper actually than the foreign specimens, although the price of the latter is less. This year British grown Apples exported to Paris secured fancy prices, and the merchants who exported them are so satisfied at the results that they say they will develop this branch of trade in coming years. One Paris firm has already ordered 1,000 bushels of British Blenheim Orange Pippins alone for delivery during December next. By planting fruit trees propagated in the Midland counties, which are of hardier constitution than some propagated in the warmer southern counties, Apples can now be produced which will assure supplies for nine whole months of the year. That is from August till May. During the past season home Apple growers utilised cold storage on an extensive scale, with the result that they have at the present time ample supplies on hand of best quality fruits. This season the exports of British Apples have been larger than ever, and there are ample signs that this branch of trade in future years will be developed on extensive lines.

The Art of Pruning.

In continuing this subject, from page 104, I propose first to deal with standard trees. Apples and Pears may practically be treated on similar lines. In each case pruning should be varied to suit the peculiarities of different varieties. After the first year's pruning, several shoots will, as a rule, start from those which were cut back, often more than should be retained to form main branches. It is unwise to start too many branches from near the main stem, because when they become thicker the tree is too much crowded at that point; therefore, before shortening any of the main shoots, look carefully over the tree, and cut back to within two buds of their base any shoots not required, leaving the centre of the tree open. Then shorten the branches retained hard, or moderately, according to their strength. Generally from one-third to one-half of the young shoots should be removed, cutting them back to a good wood-bud pointing outward.

During the ensuing season strong growths are usually made, and at the next autumn or winter pruning the leaders should

only be shortened moderately, i.e., have a few inches of the end removed, or in other instances about one-third the length of the shoot. The weaker the shoots the harder they should be shortened. At this pruning extra leaders should, of course, be retained, generally from nine to twelve; others not well placed being removed, and side shoots cut back to within two or three buds of their base. During subsequent years, many varieties will not need to have the ends of the leaders shortened at all. Allow them to develop naturally by retaining an extra leader here and there as the diameter of the tree extends, and room can be found for an additional branch. Each branch should now be treated as a cordon, having side shoots cut back as previously advised, with the exception of short stubby shoots 3 in or 4 in in length. These should be left intact, as they produce some of the finest fruit. Such varieties as Lane's Prince Albert, Cox's Orange Pippin, and King of the Pippins, which produce long thin shoots, may with advantage have their leaders shortened for a few years longer. This is strongly advised in the case of the first named, because it is such a prodigious cropper on old and young wood alike, that if given but little pruning it fails to make a fine head. I should have mentioned previously that when any variety sends out a long shoot to upset the balance of the head, that shoot should be shortened to preserve the contour of the tree.

Standard trees thus managed will go on giving satisfactory results for many years, but there comes a time when the main branches are too thick toward their base, and too far from the outline of the tree to form either good fruiting spurs, or fine fruit. Then it is necessary to alter the method of pruning by gradually confining the fruiting area to the outline of the tree. Allow young shoots to stand all over the outline of the tree; do not shorten them at all, but thin them to a foot apart. Then remove all the spurs on the lower parts of the main limbs, and rub out any young growths which push from them in spring. By such means a half sphere, evenly covered with young wood, is produced, for which the bare limbs in the centre form the framework, and the fruiting area receives the greatest possible amount of air and sunshine. Trees so treated, if kept healthy by spraying for insect pests and diseases, will produce splendid fruits.

In the treatment of Plums, I am no believer in the hard spur pruning which some advise, as Plum spurs soon get long and bare at the base. Comparatively young wood gives the best results. Shorten the shoots moderately for two or three years after planting, then let them go, merely thinning them to ensure full exposure, and shortening the "runners," which go far beyond the outline of the tree, because these are inclined to break off under the weight of fruit, as well as to spoil the balance of a tree. When a Plum tree becomes covered with spurs, makes but little annual growth, and the fruit produced

is small, head it back in early autumn so that a head of young wood may again be formed, which in a few years will give satisfactory results.

In dealing with neglected trees of Apples, Pears, or Plums, in old plantations, do not thin the branches too freely the first year they are taken in hand, but rather aim at the removal of dead wood, cross branches, and worn-out limbs. See that the branches removed are cut back close to the trunk or limb; leave the wounds clean and smooth, and cover with Stockholm tar. Then pay attention to spraying so as to get rid of lichen and insect pests, to ensure a clean healthy bark surface. With matters improved in this respect, the freer thinning of the branches may go on another year with better prospect of success. The pruning of old trees in too drastic a manner has in many quarters brought the practice into disrepute, because owners have had to wait for years before obtaining sufficient fruit to pay the rent, after having gone to the expense of having their trees pruned, by men whose energy has been greater than their knowledge of the subject.—H. D.

Peas and Sweet Peas.

It may not be generally known that the firm of Mr. Henry Eckford, Wem, have participated in the progress of the culinary Peas to a very great extent. Certainly, Sweet Peas have always been their mainstay, and it is by Sweet Peas that they are most widely known. But a very considerable area of ground is devoted to kitchen Peas, as may be seen from the "avenue" of them on this page. Among the best that Eckford's have produced are Record, Renown, Ideal, No. 1, and Dawn.

Then we turn to the Sweet Peas. Year by year sees new and improved kinds emanating from Wem. One time it is Scarlet Gem; another, Henry Eckford; and so on. This year the firm's offer of novelties comprises Mima Johnson, H. J. R. Digges, James Grieve, Prince Olaf, Hannah Dale, May Perrett, Purple King, White Waved, and Primrose Waved. James Grieve we regard as the best yellow yet introduced. They also include The Marquis and Princess Victoria, which are both first class; likewise the greatly praised St. George. The variety Queen of Spain, which we figure, was sent out last year. This has received great praise and commendation. In colour it may be described as a soft pink of ivory clearness, exceedingly dainty, a flower which everyone instinctively admires. It is a strong grower, making long stout stems with usually three flowers very prettily placed. Twenty years ago the firm of Henry Eckford grew less than two acres of Sweet Peas. Last year it exceeded forty acres for seed.



Culinary Peas at Eckford's.



A field of "Queen of Spain" Sweet Peas.

Microscopic Gardening.*

(Continued from page 76).

The following is a most extraordinary case of microscopic gardening, with so much appearance of purpose in it that one would be justified in hesitating to accept the details were they not vouched for by such excellent observers, and worked out in such detail by competent men.

Bates in 1863, in his travels on the Amazon, was struck like other observers by the enormous numbers of leaf-cutting ants, which cut bits out of the leaves of all sorts of trees and carry the bits to their holes, and he not unnaturally asked, "What do the ants do with these bits of leaves?" Belt, another English traveller in the same region in 1874, suggested that the ants make beds of leaf mould in their underground passages, and use as food the fungi which grow from these prepared Mushroom beds. Of course, the idea of ants turning gardeners in this way was laughed at, though a little enquiry will show that ants, bees and wasps, do carry out many other operations quite as remarkable.

However, it turns out that Belt was right, for in 1893 Möller published the results of his careful observations extending over several years, and showed that the ants not only build up the bits of leaves into definite garden-beds, but they foster the growth of the fungi which spring from spores attached to the leaves, carefully weed out foreign forms, and regularly harvest the crop for food. Not only so. Möller himself sowed the fungus in microscopic gardens, obtained the crop and found out what species it was, and proved that the ants were better hands at microscopic gardening than had even been imagined, for during the course of ages they have selected and bred a special variety of the fungus, so peculiarly close, short, and juicy that it reminds him of the Cauliflower varieties of our own Cabbages, and he names it the "Cauliflower" variety.

Here is microscopic gardening on a refined scale, and although we must not be led away in our ignorance into unfounded speculations as to the motives or objects—plans, if you like—of the ants themselves, the success of their communistic efforts in market gardening on a microscopic scale cannot be denied, and may teach many a lesson to the thoughtful who reflect on how often a little intelligence is employed on cultivations on a much bigger scale of commercially useful plants.

It will probably occur to most of you that brewing is one of the most ancient of all forms of microscopic gardening, and it too has a history of development from the mere accidental exposure of decoctions of vegetable origin to fermentation, advancing to the refined pure cultures of special races and varieties of yeast in carefully prepared worts and musts of the

present day, just as gardening and agriculture have progressed from the rough clearing of unweeded patches about the homestead to the scientific preparation of soils and manures, and the selection of pedigree seeds properly sown and tended by the highly trained experts of to-day.

Brewing, in the broad sense of fermentations of wine and other spirituous liquors as well as beer—is still carried on in a most primitive way by savages, and even by other peoples. Not to dwell on the manufacture of pulque, palm wine, &c., where the saccharine juices of plants are merely exposed to the action of any spores that may be floating about in the air, trusting to the particular one needed being in sufficient abundance, or growing with sufficient rapidity and vigour in the liquid, to oust all others—passing over these cases, I say, the manufacture of wine and beer has for centuries been a more or less hap-hazard affair, just as that of mead used to be. But of late years two sets of events have rendered the application of the methods of microscopic gardening necessary especially to the brewers of beer. One was the discovery that certain faults in beer—in some cases destructive diseases—are due to weed-yeasts making their way into the vats and driving out the yeasts that do the necessary work, and the other was the hope of raising varieties or races of the yeast-plant which should give a better beer.

Pasteur long ago called attention to the fact that foreign germs—i.e., weeds in the sense of my theme—cause diseases in beer, and Reess and others showed that there are various kinds or species of yeast; but it is to the genius and industry of the Danish zymotechnologist Hansen that we owe most of the numerous discoveries of weed-yeasts and of various species and varieties which produce beers of very different quality.

The interest of all this to us at the moment is that these results were got by the rigorous practice of the methods of microscopic gardening—by isolating a single cell of the particular yeast to be studied, growing it singly on a specially prepared bed kept free of microscopic weeds, and growing from this single cell a pure crop so large that it could be put into the mash-tub and its beer-producing qualities tested.

This is not the place, nor have I the time, to enlarge on this subject; but microscopic gardening operations applied to yeasts are spreading rapidly, and affecting the baker who wants good yeast for his bread, the housewife who wants it for her pastry, as well as the brewing industry all over the world.

To horticulturists, however, these matters do not appeal so directly as do many of the results obtained by different paths of enquiry which branched out from the more special questions just touched upon. The researches of De Bary, Brefeld, Cohn, Pasteur, and their pupils had at various periods since 1860 led to much investigation of the contents of soils. Among other matters it was soon found that common garden and field soils abound in the spores of fungi, yeasts, and bacteria, and a natural enquiry was, what are these organisms doing in the soil?

(To be continued.)

* By the late H. Marshall Ward, D.Sc., F.R.S., before the Royal Horticultural Society, 1897.

Trees and Shrubs.

A Californian Shrub—*Aplopappus ericoides*.

The illustration of this plant was obtained from a specimen which flowers annually on a sheltered wall, with a southern aspect, in the herbaceous ground at Kew. The plant is fan-trained, and about 7ft in height. The name *ericoides* refers to the leaves, which are *Erica*-like in appearance, and very numerous. The flowering season is late summer and autumn, the flowers retaining their decorative value for a considerable period. The photograph, indeed, was taken in November. The light yellow flower heads are disposed in loose terminal corymbs. The plant is a native of California, and belongs to the natural order Compositæ. Cuttings of the young growing shoots root readily in sandy soil, in a propagating frame, with slight bottom heat, in spring. The plants thrive in ordinary garden soil. It should be grown against a wall, or in a sheltered position, requiring protection in winter, except in the milder parts of Great Britain and Ireland. When afforded the protection of a cool greenhouse the plant is evergreen, but the plant illustrated is at present leafless. According to the Kew "Hand-list of Trees and Shrubs," the plant has had at various times three names, in addition to the one at the head



A little-known Californian Shrub.

of this note, namely, *Diplopappus ericoides*, *Ericameria microphylla*, and *Haplopappus ericoides*.—S. E.

Notes on the Subjects at Crawley.

During a visit to Messrs. Cheal and Sons' nurseries at Crawley in the autumn, I was interested in their large stock of home-trained clipped Yew and Box trees. Finding that the demand for topiary specimens, such as have been exhibited at the Temple Show and elsewhere during recent years, was greatly in demand, and that the Dutch purveyors of them were charging higher and higher prices, the Crawley firm set about raising their own. Now they have 500 figures of varying sizes and shapes. One is in the form of a dog-kennel; another takes the shape of a ship with sails set; a third is an easy chair; and there are several spirals, columns, spheres, ovals, obelisks, and so on. All are carefully and cleverly done, showing that there is no reason why the Dutchmen or any other foreigners need have the monopoly over us. Messrs. Cheal were also able to show some very interesting other subjects, as *Buddleia variabilis Veitchiana*, *Philadelphus coronarius* fol. var., *Quercus coccinea purpurea*, *Berberis Thunbergi*, *Araucaria imbricata*, 10ft high, *Acer atro-purpureum*, *Acer saccharinum*, *Acer rubrum*, *Acer tartaricum Ginnala*, a very elegant variety, with *Koelreuteria paniculata*, *Piptanthus nepalensis*, *Nandina domestica*, which is harder than most growers imagine, and colours up splendidly in autumn; with hosts of other good things. *Rhododendrons*, *Roses*, evergreens, and fruit trees and bushes are grown by the acre, for the firm has a large outlet for all their stuff in the many new gardens which they lay out, as well as, of course, to the established places. But more anon.—T.

Notices of Books.

AN ENUMERATION OF THE VASCULAR PLANTS KNOWN FROM SURINAM, TOGETHER WITH THEIR DISTRIBUTION AND SYNONYMY. By Dr. A. Pulle. Leiden: E. J. Brill, Ltd., publishers and printers; price 15s.

Surinam, or Dutch Guiana, is a Dutch colony in South America, situated between English and French Guiana, having the former on the west and the latter on the east. Its coast line extends from the River Corentyn to the River Maroni. The length of the territory north to south is 300 miles, and the average breadth about 230 miles, area about 60,000 square miles. The general aspect of the country is flat and swampy on the coast, and mountainous in the interior; well watered by numerous streams, flowing generally south to north, and of which the Surinam, with its affluents, and the Coppename, are the chief. It has also a warm climate, similar to British Guiana, two dry and two wet seasons, each continuing for three months. The wet embraces the months of December, January, and February, and then June, July, and August. The mean annual temperature of British Guiana is nearly 81.2deg; that of Surinam being similar, the moisture abundant, and the soil very fertile. Until recently only a small portion of the colony had been brought under cultivation, the settled portions being chiefly confined to the lower courses of the River Surinam and the coast, while the remainder was still nearly covered with the primeval forest. The cultivated districts are intersected by numerous canals, and so much labour is bestowed on the soil by the husbandman that parts resemble an extensive garden, and yield similar products.

Such is the data we are able to gather in respect of Surinam's warm, moist climate, and its very fertile soil; while of the luxuriance of its flora very little was known until the nineteenth century, for though travellers were impressed with the richness of the Surinam flora, no plants were conveyed by the Dutch to Europe during the seventeenth and eighteenth centuries. But some specimens reached Europe through Dalberg, a Swede, who made important collections for Linnæus, and by Rolander, a Dane. Dr. Pulle gives the whole history of the investigation of the flora of Surinam in his book, from pages 1 to 12, and then we come to the Systematic part.

Commencing with *Hymenophyllaceæ*, fifteen species of *Trichomanes* and three species of *Hymenophyllum* are enumerated, with their locations and habitats, mostly on trees, the moisture and shade of the forests evidently suiting the "Filmy ferns." *Cyatheaceæ* are represented by *Hemitelia* and *Alsophila* species and varieties; the tree ferns also luxuriating in the warm moist climate. *Polypodiaceæ*, in genera *Nephrodium*, *Didymochlæna*, *Aspidium*, *Nephrolepis*, and a vast array of others, embracing *Adiantum*, *Asplenium*, *Stenochlæna*; *Pteris*, with many other genera, some

well known and others not found in catalogues of exotic ferns. Of *Parkeriaceæ*, the only species enumerated is *Ceratopteris thalictroides*, which is given as found in ditches. *Gleicheniaceæ* also only embraces one species, viz., *Gleichenia pectinata*. *Schizaceæ* includes five species of *Schizæa* and three of *Lygodium*, with one *Anemia*. *Salviniaceæ* is comprised of one species of *Salvinia* and one of *Azolla*. *Marattiaceæ* includes two species of *Danæa*, and *Ophioglossaceæ* two of *Ophioglossum*. *Lycopodiaceæ* embraces five species of *Lycopodium*, and *Selaginellaceæ* six forms of *Selaginella*.

In a similar manner Dr. Pulle takes us through the whole natural orders of plants, passing on to *Alismataceæ*, with two species of *Sagittaria* and one of *Lophotocarpus*; while *Butomaceæ* includes the well-known *Hydrocoleis* (*Stratiotes*) *nymphoides*. In all cases the location where found is given along with the other countries in which present, and time of year in which flowering.

Surinam, as would be expected, is rich in *Gramineæ*, including *Coix lacryma* and *Saccharum officinarum*, of course cultivated for sugar and rum, there being a vast array of *Paspalum* and *Panicum* species, the only bamboo being *Bambusa vulgaris*, which is stated to be cultivated. *Cyperaceæ* is represented by a host of *Cyperus* sp. and several other genera; while *Palmeæ* is singularly rich in *Geonoma* sp., the vernacular names being given to most of the genera, as well as the botanical. Altogether Surinam boasts of 2,101 species belonging to most of the natural orders, which are given in tabular form as well as enumerated separately, and there are several illustrations of the most remarkable genera and species, all full page, and excellently executed.

The phytogeographical remarks are replete as to climate; all-important from a cultural point of view. The temperature

is remarkably equal, yet evidently this only applies to the region Paramaribo, and not to the interior, which is covered with primitive forest, and being higher, much cooler. The rainfall also appears pretty evenly distributed over the year, the average number of rainy days is 204 annually, so that an eventual dry period never last long, the two maxima being in December. January is the so-called minor wet period, and in May and June, the so-called major wet period. The minima occur in February-March, the minor dry period, and in September-October, the major dry period. The wind receives a generous share of attention, and the climate generally is compared with the neighbouring French colony, and the "Plant Formations and Vegetable Zones" are well treated; while the "Distribution of the Species and Comparison with Neighbouring Districts" is given succinctly.

Lastly, the list of vernacular names is singularly instructive. Advocat is *Persea gratissima*; Agema—*Solanum oleraceum*, cultivated by the negroes; Aralta kakapepe—*Capsicum frutescens*; Arrow-root—*Maranta arundinacea*; Bacove, Bakveba and Bana—*Musa paradisiaca*; Bayboom—*Prinetia acris*; Krapata—*Ricinus communis*; Okro—*Hibiscus ovententus*; Kwassi-bita—*Quassia amara*; Zamoe—*Nicotiana tabacum*; Water Guave—*Pavium polycarpon*.

The work has a complete index, and is the most elucidative of the vegetation of Surinam, with much relevant matter in respect of tropical plants in neighbouring countries.—G.

Eighteenth Century Gardening.

Border Flowers.

During the earlier years of the century there was little change in the kind of flowers cultivated from those in the one preceding. The same style of borders and beds was continued for a number of years, and by and by, when a taller and generally more coarse type of plants got into cultivation throughout the country, these were relegated to a kind of wild garden called a wilderness, notes concerning which have already appeared. The commoner kinds of Auriculas, Polyanthus, Primroses, double and single; Fritillarias, Crown Imperials, of both of which a large number of varieties were to be had; Pinks in variety, Carnations, single and double; Hepaticas, Snowdrops, Crocuses, Colchicums; a great variety of annuals, tender and hardy, and other plants furnished the former; and Starworts, Helianthus, and plants of the same type were relegated to the wilderness, where Primroses, Cowslips, and other common flowers were also planted.

Of annuals, quite an extraordinary number of sorts was to be had, and full advantage seems to have been taken of them in a large measure to supply the blanks made by the foliage of hardy bulbs dying down. There are full lists of these at various periods, which may be consulted, but the best is that of Abercrombie, which is to be found in several of his works. There were several Marigolds, Antirrhinums, the Belvidere (*Kochia scoparia*), "Caterpillars," "Hedgehogs," and "Snails" (*Medecagos*), grown for their curiously formed seed vessels; several kinds of Convolvulus, Cornflowers, and Nigellas. Indian Pinks were first cultivated by Fairchild, of Hoxton, in 1713. Larkspurs, upright, rocket-flowered, and branching; Mignonette, which, as illustrated by Miller, was a poor thing, and could have been admitted to gardens for its scent only. There were several Lupines, Pansies, seven varieties of Sweet Peas, though in the greater part of the century, White, Painted Lady, and the Common, were the only kinds. Of Scabious about a dozen varieties; Stocks, Gilliflowers, several Sunflowers, and Xeranthemums.

Of half-hardy annuals, the African and French Marigolds were largely cultivated. Balsams were also popular, and Chrysanthemum coronarium (treated as not quite hardy); China Asters, of which Miller states he received seeds in 1731, which produced red and white flowers. Two years later the plant (single) was figured in "Hortus Elthamensis," Dillenius having received the seeds from Leyden. In 1752 Miller notes receiving the first double flowers, red and blue; and the next year the double white. In 1789 Abercrombie notes quilled, bonnet-flowered, and common, in many varieties. The Indian Pink was usually included in this section. Besides the common forms, there was a strain raised called Imperial and Double-flowered, long before the close of the century. Zinnias also appear before the end of this period.

Of tender annuals admitted to the flower garden, Cocksooms (which include Celosias) were very popular, and though old garden plants, many varieties were raised and cultivated. Globe Amaranthus was also grown in four or five sorts, and the Ice-plant, or Diamond ficoides, as it was called for its curious glistening appearance. Of Marvel of Peru there was a large variety of colour. Of bulbous plants the majority have already been noted; but several pretty Gladioli, Ixias,

Sparaxis, and other Cape bulbs, several of which are illustrated in Miller, were introduced to English gardens. Of Lilliums, in addition to good older species, *L. Catesbæi* was introduced in 1787. *L. superbum* was earlier, having been cultivated in Sherard's garden at Eltham in 1727; and Miller added *L. philadelphicum* and *L. kamschatcense*, both of which he figured. The Narcissus was a somewhat neglected plant, and the only new form that appeared was *N. tenuior* of Curtis, which he found in Maddock's nursery in 1794; but Grimwood and Barrit had it in 1789. As already noted, the Polyanthus Narcissus was so popular that other species were neglected.

Of fibrous-rooted perennials, gardens were enriched by many first-rate additions. Asters alone, if they had been appreciated and properly managed, could have made quite a feature. But the greater portion never got beyond botanic gardens, or the wilderness. Mention may be made of *A. acris*, *ericoides*, *dumosus*, *lævis*, *versicolor*, *multiflorus*, *Novi Belgæ*, *Novæ Angliæ*, *punicus*, *grandiflorus*, and *cordifolius*, as the pick. There were earlier introductions which also were available. *Inula ensifolia* was a late introduction, but *Helenium autumnale* was grown as early as 1729, and *Chrysanthemum indicum* was cultivated by Miller as early as 1764; the beautiful *Boltonia* (*Aster*) *asteroides*, and *B. glastifolia* in 1758. *Bupthalmum salicifolium* was a year later; and *Helianthus decapetalus* in the same year. *Gaillardia bicolor* did not appear till 1787, but *Rudbeckia hirta* in 1714, and the silvery-leaved *Cineraria rugosula* yet earlier; *C. babylonica* in 1710. *Silphium laciniatum*, *S. perfoliatum*, with others, also belong to this period, and a few pretty Othonnas.

Of Poppies, the Oriental was known as early as 1714; *nudicaule* was cultivated at Eltham in 1730, and *alpinum* in 1759, by Miller. *Actæa racemosa*, *Pœonia tenuifolia*, *Delphinium grandiflorum*, *Anemone pennsylvanica*, *Phlomis samia*, *Tiarella cordifolia*, *Gypsophila paniculata*, which up till recent years was hardly known, or only to the curious, on account of the dried-up plants of the previous year being blown along the wild wind-swept steppes of Russia, were each to be had. *Saponaria ocymoides* is another good plant of this century. Sweet Williams were common, and were known in varieties as Painted Ladies, Scarlet, White, and many double forms. In Miller's plates is a Sweet William, but a very poor form, though at the end of the century the Auricula-eyed type was as fine as it is usually seen to-day.

The Mule Pink is well known to have originated in Fairchild's nursery at Hoxton. In Bradley's "New Improvements" (1717), its origin is described, and the plant is stated to be "neither Sweet William nor Carnation, but resembling both equally, which was raised from the seed of a Carnation that had been impregnated by the farina of the Sweet William." Fifteen years later Mule Pinks would appear to have been quite common, but the parents were Indian Pinks and Sweet Williams. It is perhaps unnecessary to state that what is still termed the "Old Mule Pink" is not Fairchild's, any more than the "Old Clove," which some people pride themselves in possessing, is not the old Clove Gilliflower. Other Dianthi of the century were *Dianthus ferrugineus*, well figured by Miller; *D. monspeliensis* and *D. alpinus*, also introduced by Miller.

Arenaria balearica and *A. grandiflora*, *Sedum Aizoon*, *Agrostemma Flos-jovis*, *Bocconia cordata*, *Veronica incana*, *V. gentianoides*, *Monarda didyma*, *Phlox paniculata*, figured in "Hort. Elth." 1732; *P. suaveolens*, and the dwarf-growing *P. ovata* and *carolina*; *Polemonium reptans*, *Campanula pulla*, *Lobelia cardinalis*, though a seventeenth century introduction, was extensively grown in the eighteenth; *Galax aphylla*, *Viola cornuta*, a plant which was much used forty years ago, and which was used in the evolution of the present bedding type of Violas, were each common. *Gentiana bavarica* is another gem, and of *Statice* were added *cephalotes* and *latifolia*, among several others.

The useful *Celsia cretica* was grown at Chelsea in 1752, and *C. Arcturus* found its way to England about 1780. Both, however, were treated as frame biennials. *Mimulus ringens* is another of Miller's plants; while of *Iberis*, *gibraltarica* and *sempervirens* were added to those already in cultivation. *Alyssum saxatile* appeared in 1710, and *Sisyrinchium bermudianum*, as a stove plant, about 1730. *Liatris spicata*, along with others of the same genus, now quite forgotten, were included.

Though gardening literature is not greatly taken up with hardy plants, it must not be supposed that the number of plants cultivated was anything like so meagre as the above names might lead one to believe. Abercrombie's list is very extensive, and includes plants which had been introduced previous to this century, as well as a great number of various other popular plants, so that those who wished might have had very gay gardens for almost as long a period annually as we have now. Not improbably some plants that have been allowed to go out of cultivation on account of a lack of popular qualities, would also be cultivated as novelties.—B.

Dahlias.

To succeed with Dahlias, especially with the cactus and doubles, it is better to rely on young plants from cuttings than from those obtained by potting up old tubers, notwithstanding the more robust appearance of the latter for a few weeks during their earlier stages. Cuttings root fairly easily, although perhaps not quite so much so as Chrysanthemums and some other flowers. Old roots should be bedded in, in light soil, deep enough to almost bury them, but not so deep as to cover the lower portion of the old stem, where the eyes are situated. The reasons for leaving this part quite bare are twofold; first, if the eyes are covered with soil, the cuttings, when produced, are exceedingly stout, and in consequence sappy and unsuitable for propagation; and secondly, it is best to be able to plainly see the base of each cutting to tell where best to cut it. Three to four inches long, and of wiry growth are ideal cuttings, and they should be taken off quite close to the parent tuber, but not of necessity close enough to destroy any of the surrounding younger shoots. Insert in a compost of at least one-third good silver sand, the remainder fresh sweet turfy loam and well decayed leaf mould.

Dahlia cuttings strike exceedingly well if put in singly in 2in thumb pots, but there is no reason why several should not be rooted together in 3in or 3½in pots, putting the cuttings by the side of the pot instead of in the centre. Unlike some varieties of flowers of a softwooded nature, the cuttings are best if not allowed to droop, and a copious wetting through a fine spray rose may be given at once, after which they may be kept at a happy medium by lightly spraying whenever they approach a dry condition. Although they will strike very much quicker in a high temperature with bottom heat, yet it is by no means absolutely necessary, and, in fact, the cuttings which root slowly in a temperate house are much the best in the end, as the roots are very much stronger. Place the cuttings in a light, warm, yet airy position, not in a close, hot, stagnant atmosphere, and shade them from direct sun. Some days may elapse before they look particularly brisk and hopeful, but if the soil is moderately moist do not be led to water them too much in order to freshen them, and at the same time they ought not to shrivel, or the chances are they will rot. It is the first few days after insertion that are tedious ones, as in a healthy normal state they will soon right themselves, and keep perfectly fresh henceforth. About three weeks is an average time for striking, but some sorts, especially if they are big cuttings, may run a month. They root very fast once they begin, and the roots are very strong. It is necessary, therefore, to pot them into larger pots almost as soon as they start rooting, as otherwise the young roots, which are in reality the next autumn's tubers in embryo, will get distorted by running round the small space afforded inside the pot. They may be transferred to 3½in pots in a good loam and leaf mould compost, and allowed to get a little start while still in the greenhouse, but to prevent them getting drawn and spindly, the frame is the best place as soon as fear of frost is past.

Young plants are best potted on until they reach about a 5½in pot, i.e., one more potting. I do not think anything is gained by growing them on to a large size before planting out, as I often notice big plants require so much nourishment to keep them going, that when first put out in the open they feel the shock to such an extent that they fail to keep up a sufficient supply from the disturbed roots to satisfy the demands from above, and in consequence the plants droop badly and get so hard and unkindly that finally they have to make a fresh start from below ground, and in the end are more backward than the plants which were much smaller when planted.

Early March is a good time for thoroughly turning up the Dahlia ground, and a good dressing of manure, fresh loamy soil, or road sweepings may be dug in. The land should be moved to as great a depth as is possible with a good fork, and is best left as rough as it leaves the tool when turning it. Heavy clay soil if left in this state to get thoroughly dry, is very easily got into planting order if the grower is fortunate enough to get a good rain on it; in fact, some soil is so heavy that this is practically the only way to get it into anything like a fine state, and the weather has to be watched accordingly in order to take full advantage of it. Old tubers, if planted in the open ground and allowed to carry several stems, will produce a quantity of bloom of a second-rate quality, if a little necessary care and trouble is taken when they are planted. Dig out a good sized hole and stir in some rotten horse manure, fill in a layer of soil high enough to bring the tuber near the surface when stood in its place, then get a little fine rubbish such as accumulates where sweepings, &c., are tipped, and fill in round the tuber with it, so that it may start its young fibre into this fine stuff, instead of into the rougher soil. Now fill up remainder of the hole and level off the whole neatly, leaving the upper portion of the tuber just comfortably covered with soil.

Huge clumps may be grown in this way, of the more hardy varieties, and they will stand a good lot of dry weather with-

out showing any sign of want, as their roots are rambling in the manure buried underneath. Considering the benefit derived from this system of Dahlia planting (I refer to the getting out of a hole and putting in manure), it is a wonder that Dahlias, even when planted merely for decoration, are not more generally treated in this way. The great drawback of slugs eating the young shoots as they push through the soil can only be guarded against by dusting them with lime occasionally, and by destroying the slugs by means of a knife and help of a lantern.—S., Sussex.

The Lapageria Outdoors.

It is pleasant during the present wintry snap to call up reminiscences of summer. Memory's pages unfold pictures of landscapes, plants, and flowers communicated thereto during past peregrinations. During one of the latter in the Principality, where, on its seaboard, so many good, rare, and semi-hardy plants flourish, a picture of the *Lapageria* occurs to one's mind, and which happily was photographed when carrying about 1,000 fine flowers, the plant being in the most perfect healthful vigour, filling a wall space 16ft in length, and about 6ft high. This has braved many winters in the open, in the gardens of Bodlondeb, on the Conway river; and is the pride equally of its owner, Mr. A. Wood, and his gardener, Mr. Tindall. This plant reminds me of another seen many years ago in a much less favourable climate, where some growths found their way through broken glass and faulty woodwork in the greenhouse, and wandered a considerable distance, and being fastened upon a wall, flowered for years.—THOS. LEWIS.

Diseases of Plants

Hollyhook Rust

Supplementary to the notes on page 61, I would observe that the Hollyhook brand (*Puccinia malvacearum*) was first known in Chili in 1852, and in 1862 appeared at Melbourne. It reached Spain in 1869, and France in 1873, and in this year it was first heard of in the south and on the east coast of England, and soon spread with extraordinary rapidity all over the country, attacking wild malvaceous plants as well as the Hollyhook, and assumed the nature of an epidemic, sweeping off Hollyhooks, especially the choicer varieties increased by division or cuttings, in a wholesale manner, so that their culture was practically precluded.

No efforts were spared, when the disease was at its height, either to eradicate or mitigate its evils, but with small success. Treatment with Condy's fluid, a tablespoonful to a quart of water, was the first repressive measure adopted, and afterwards much was said to be effected by the use of permanganate of potash, 1oz of the crystals dissolved in a gallon of soft water for application by means of a sponge to the pustules, both the Condy's fluid and the permanganate of potash solutions causing the pustules to turn black and fall out, whilst no injury was done to the plants. As a preventive spraying with permanganate of potash solution, 1oz crystals to three gallons of water, was advised, and where adopted gave good results; indeed, according to the experimenters completely prevented, and where present checked and eradicated the disease.

Albeit, the Hollyhook fungus practically swept the named varieties clear away, and as these were the most affected the idea prevailed that the disease was induced by weakening of the constitution of Hollyhook by the continuance of varieties by cuttings and the high cultures practised, together with the hard propagation of new varieties, all tending to weaken the Hollyhook's constitutional vigour and render it more susceptible to disease. This gave rise to the raising of the plants from seed, and in some measure had the desired result, as the seedlings were not only more robust and disease resisting, but a large percentage were single or semi-double only in bloom.

But the growers who saved seeds from the best flowers only, and crossed with other good sorts to obtain new varieties, found the fungus growing on the first leaves of the seedlings; while others who saved seeds from the best varieties in cultivation without crossing the flowers had mixed experience, some of the seedlings being diseased and others relatively or wholly free from the fungus, and out of the many plants one-half were neither better nor worse than the parent as regard quality, and scarcely any difference in the colour of them. Thus it was seen that good varieties could be as well raised from seeds as from "eyes," cuttings, and divisions. Therefore the growing of Hollyhooks from seed came into vogue, and for a time the disease appeared to lose its virulence and greatly abated its ravages, though this was probably as much due to lack of plants as to constitutional vigour of new generations in much lessened number, for was the fungus not meanwhile running riot in Musk Mallow (*Malva moschata*) growing in waste places all over the British Islands? In one instance recently I noticed

a very luxuriant group of Mallows by a ditch badly affected by the fungus, and the whole died, not a plant to be found there since (over ten years ago), while in the meadow, not a dozen yards away, the fungus lives in the mowed over and browsed down examples growing still. I also had for years a Mallow plant on some grass affected year by year with the fungus, and not a dozen yards away were seedling Hollyhocks, single-flowered, not a few self-sown, that in seven years did not contract the disease.

In contrast with these were a bed of double Hollyhocks, guaranteed by the supplier as free from disease, which in the first year of planting were affected by the fungus, and got worse as the "years rolled by," so that they were shifted to other quarters, and in these were as badly affected as before, though when moved and divided there was not any growth

do not become pronounced until the flowering stage is reached. The best and surest way of combating the disease is to remove and burn affected leaves; this may mean ruining the appearance of the plant for the season, but it is certain, the stems being also destroyed, to free the plant from the fungus, inasmuch as no teliospores are allowed to perfect and to be dispersed. There not being any teliospores, the plants are not attacked in the second season, whereas if the leaves are allowed to perfect spores, or the faded or even any diseased leaves are left on the ground or plant, the disease is certain to appear the second season.

Spraying with Bordeaux mixture is effective, but it must be used preventively, and be repeated at intervals in order to destroy the spores or pro-mycelium from them, and this is unsightly, and in some cases regarded as nearly as bad as the



An Open-air Lapageria with 1,000 flowers.

other than buds to be seen, and it is doubtful if any teliospores were carried over with the rootstocks or divisions.

Of course, it is now well known that the Hollyhock Puccinia (as well as many other species) go over with the seed or plant, and the disease is, therefore, hereditary, the disease plasma living in symbiosis with the host-plant, even exploiting it, and not giving any evidence of presence until the time arrives for the production of its "fruits" under the most congenial conditions for their perfection and dispersion. The question of raising disease-resisting varieties is of paramount importance in this connection, but this even only endures for a time, as in most instances the parasite appears to acquire new and increased power so as to successfully obtain a footing on the varieties at one time absolutely resistant of the attacks of the fungus.

Seed should not be saved and plants raised from diseased plants, for it has been ascertained that, when the carpels are attacked by the fungus, the seeds produce diseased seedlings, in some cases the pustules appearing in the cotyledons, though in most instances not making appearance until the plants are well advanced in growth, and in not a few cases the "fruits"

disease. When clear lime water is used in preparing the Bordeaux mixture, there is practically no unsightliness, and in the dilute form as given in the *Journal of Horticulture*, August 29, 1907, no injury accrues to the foliage. Messrs. Webb and Brand, Saffron Walden, famous for Hollyhocks, recommend a preparation for dusting on as follows:—To 1lb of tobacco powder add 4oz of finely pulverised sulphate of copper, and well mix. Dust the under side of the leaves every two or three weeks during the growing season, choosing still and dull days for the operation. This is not at all unsightly, and acts both as a fungicide and insecticide. It is of course, somewhat difficult to coat the leaves on the under side by means of an ordinary powder-distributing apparatus, but it can be done readily by the Malbec bellows, as this can have the nozzle so placed as to deliver upwards, while in the case of young plants at this time of year they can easily be dusted by holding the plants in pots inverted and the other by inverting the leaves with the hand and dusting with the other, even by means of a muslin bag. In spraying, the leaves must be coated on the under side, using a syringe with an angle piece and spraying nozzle.—A. B.



The Passion Fruit.

A LETTER FROM QUEENSLAND.

It is most amusing to a Queenslander to read the criticisms on the Passion fruit (*Passiflora edulis*), condemnatory of it. Let the writers take a journey this way if they cannot procure it in condition, and hold their verdict for the time being. Later, a writer on the other side is evidently writing of the Granadilla, and not of the *Passiflora edulis*. The former is a very much larger fruit. *P. edulis* is to be found naturalised and fruiting in a wild state very much in certain localities. The Passion fruit is one of our most esteemed fruits, and almost as necessary to a fruit "salad" as the Pineapple. As Cannell says, "Come and see"; or better still, Come and try it.—Geo. WATKINS, 206, Queen Street, Brisbane, Queensland, 20/12/07.

Canker in Apple Trees.

I am greatly obliged to "H. D." for his reply to my enquiry. But if root-pruning be essential to the development of canker in varieties of Apples specially liable to it, the force of my advice to market growers to avoid the planting of such varieties is in no way diminished. The case of a grower of Apples for home use is different; at least, if he can afford to employ any amount of labour necessary to enable him to enjoy what he fancies. Root-pruning I regard as only a remedy for faults in the pruning of the trees above ground, and the market grower should, and generally does, avoid those faults by training his trees on the extension system in moderation. Apart from this point, evidence in favour of root-pruning being a check to canker seems to me inconclusive. The assumption must be that canker is promoted by rampant growth; whereas, if it is promoted at all, I should say that it is only by such growth checked by excessive pruning of the main shoots. In my case Cox's Orange, a comparatively feeble grower, is badly cankered, while Allington Pippin, growing next to it, with Worcester Pearmain and Beauty of Bath—all much stronger growers—are nearly, or quite, exempt from the disease. Again, such weak growers as Potts' Seedling and Stirling Castle are cankered, the former very badly, and the latter slightly; whereas such much stronger growers as Bramley's Seedling, Warner's King, Newton Wonder, and Royal Jubilee are free. King of the Pippins, ruined by canker here, did grow very strongly, but hardly more so than Duchess of Oldenburg, next to it, but only slightly cankered.

My theory is that varieties with soft wood are peculiarly liable to canker, and those with comparatively hard wood not so. An exception is Cox's Orange, which can hardly be classed with soft-wood trees; but as to this (and it would apply also to some extent to King of the Pippins), I wish to call attention to a point which I have never seen noticed.

The spraying of Cox's and King of the Pippins with Bordeaux mixture, after they were in foliage, to prevent scab, caused most of the leaves to fall off in two successive seasons, while most other varieties were not harmed to any considerable extent, if at all. Later in the season they grew a second and abundant crop of foliage, which encouraged a late and sappy growth of shoots. Now, my suggestion is that these late growths were not ripened enough to withstand the frosts of winter, so that the bark was burst by frost, and canker attacked the abraded tissues. I should value "H. D.'s" opinion, and that of any other grower, as to the probable validity of this suggested explanation.

I have found the articles on canker named by "H. D." In the one on page 479 of last volume, I find nothing in the way of remedy. In the one on page 63 of the present volume, root-pruning and lifting are mentioned. Mr. Arnold says that trees on the Paradise are rarely cankered; but my King of the Pippins, which are poisoned with the disease, are on that stock. It may be, however, that the trees of my cankered varieties have suffered from the roots getting down to a wet sandy subsoil, which exists in part of the field. But here again there is a puzzle, as in the part of the field where, in draining two years ago, I found a running sand below, there are no cankered varieties, though scab is very bad there on at least one variety. I believe the subsoil is much better where King of the Pippins grow, but will dig down 2ft to see. All the field was drained before I came here, and blocked drains, so far as found, have been opened and made to work, while some new ones have been made.—A GROWER.

Outdoor Peach Trees.

I remember the doubts expressed some months ago with reference to outdoor Peach culture. Of course, there are counties and soils where it would be next to an impossibility to ripen Peaches outside, except in the best of seasons. But when such fine fruit as that displayed in the illustration on page 91, and which Mr. Divers tells us was of the best quality, can be ripened in a season like 1907 outside, I am sure every gardener with a moderately warm garden and soil should take courage. I can assure them that Sea Eagle is a fine late Peach for outside cultivation. I have grown it for years past, and even last year, which was a notoriously bad one for outside Peaches, the tree ripened off a very fair crop of useful fruits of large size.

But to those who are contemplating planting Peaches outdoors, and who have not already had experience with this fruit on outside walls, let me say that it is not only necessary to plant them against a warm south wall (where the climate is not too warm); but it is equally necessary to thoroughly drain the border with either brick-bats or large lumps of burnt clay. I know a garden where the soil is nothing more nor less than burnt clay, manure, leaf soil, and lime rubbish. Here, Peaches are grown superbly outside. The depth of clay is not known, but the proprietor told me that he sunk a well to a depth of 60ft, and found nothing but solid clay to that depth. Last autumn, or rather late summer, I saw these Peach trees, and each one was carrying a magnificent crop of highly coloured fruit. But ample and careful drainage had been placed in the borders. In cold soils there will always be difficulties to contend with, however careful the borders may be prepared. Mildew sometimes will show itself in a cold season. Leaf-curl will also give trouble. Shot-hole fungus is another disease which is rather common on cold soils. One and all, however, are not insurmountable. With a little patience and perseverance good fruit will be forthcoming, especially if a glass coping, 2ft or 3ft wide, can be placed over the trees. This will greatly assist in ripening the wood in autumn. The Sea Eagle here, however, has no such protection, and is, moreover, on a stone wall, which is not the best for Peaches. Of course, there are a great number of good varieties much earlier in ripening which will do where Sea Eagle and other late kinds would fail. Barrington does remarkably well, and ripens much earlier than Sea Eagle. Hale's Early is another fine Peach for outside culture, ripening in August and before on warm soils; it is a hardy tree. Rivers' Early is a fine hardy tree for outside, so is Alexander; and Diamond is also a very fine one for outside, so is Stirling Castle; and there are a number of other kinds. But the secret of the whole thing is a well made border.—THOMAS ARNOLD, Cirencester, Gloucestershire.

Will Mr. MacPhee kindly state how he uses sulphide of potassium to check the leaf-curl of Peach trees?—BRISTOL.

The Gardener's Discount.

All fair-minded people are desirous of seeing a way out of the smoke raised by the Corrupt Practices Act that will save the gardener's character without making him poorer in pocket. Very few of us are downright rogues and thieves. We are, at any rate, as honest as the average man who makes a little extra when he can, although it is done on the recognised lines of what we call trade or business. We are all like that, even to the nurserymen, who appear to be keen on this Act, not so much because they are anxious on the employer's account, as because they are jealous of each other. The employers as a body probably do not care two straws about the matter. They know that the gardener is about as honest as the nurseryman, and that the latter is not likely to offer the "usual discount" off the bills to them. Why should he?

No one who knows anything of what the practice has been will deny that, on the whole, it worked well enough. The employer did not mind; the nurseryman could afford it (he saw to that, no doubt); and the poor gardener was very glad to get the "bit off." It helped him, and the other two parties were not many pennies the worse for it.

For my part I am glad to learn that there are some nurserymen who look upon this C.P.A., so far as gardeners are concerned, as quixotic; it is a miserable attempt to economise by saving the cost of the grease. If that is corruption, then we are corrupt in most of our dealings with each other. One need not particularise. We call it by such names as flattery, currying favour, getting into good books, cozening, &c. Money does not enter into the deal, but other things, worth more, often do. I am not myself aggressively honest, and so I do not object to a box of good cigars at Christmas-time as a gift from the father of the young man to whom I have been in a position to lend a hand. It is so nice of him to think of me! I have felt all along that if the nurserymen and seedsmen had compacted to allow a uniform discount to the gardener, say 5 per cent., and set the police to watch those who were suspected of

treachery in their dealings with the gardeners, they would have done themselves no harm, and have left the gardener and employer as they were. My sympathies are entirely with the gardener. He is the poor man of the trio, and he is being forced to pay the piper.

And now for my way out of the smoke. Let us take it as certain that the lawyers, who have been put on to frighten us into compliance with this Act, are legally right when they declare that the gardener who accepts discount, and the nurseryman who tenders it, are law-breakers, at any rate they would be if they were found out, as the Chinese say. Then let us assume that the nurseryman did not grudge the gardener the 5 per cent. on his purchases. I give the nurserymen this credit, not one that I have discussed this matter with objected to a moderate allowance as discount; they only raved against those of their trade who offered an immoderate one as a bribe. It is probable that a nice round sum would be represented by a 5 per cent. discount on all the goods supplied to gardeners by nurserymen and seedsmen. Let this money be set aside to a sick and old age pension fund, or to make provision for the gardener when he is hard up. He might even be allowed out-of-work pay from this fund. His widows and orphans might also benefit from it. It is to be hoped the nurserymen will not look upon this proposal as one intended to tax them in the interest of the needy gardener, seeing that the 5 per cent. is at present going a-begging. The gardener is forbidden to take it; the employer is not offered it; and the nurserymen have always allowed it as a sort of you-can-keep-the-change. If they object to making this use of the money, then I suggest that they all join the British Gardeners' Association, and endeavour to obtain for the gardener fairer conditions of employment than he gets at present. All gardeners should peacefully persuade the traders, who say they cannot give discount because the law forbids it, either to join the B.G.A. or pay into the Gardeners' Discount Fund.—W. W.

The Late Mr. S. H. Edwards.

With sincere regret I read in last week's issue of the *Journal* that Mr. Edwards, the proof-reader, has joined the great majority. Although I never had the pleasure of meeting him personally, the sterling character of his work has been constantly before me in the pages of the *Journal*. Contributors and readers alike owe much to his painstaking care in keeping these pages singularly free from those little blemishes conveniently termed "printer's errors." Many of us must at times be conscious of the bad copy we supply, and of the ingenuity of compositors and proof-readers in unravelling the mysteries of peculiar caligraphy. Mr. Edwards has joined the great majority, but he has left behind a splendid example of patience and consistent industry; and I am sure the sympathy of all will go out to his bereaved family.—H. D.

Pot Washing.

I should like to fully endorse all that your correspondent, Mr. D. Thornton, says on page 87 of the *Journal of Horticulture* re "Pot Washing." I, like Mr. Thornton, wonder why Mr. Riding says it is a waste of time to wash pots. I maintain it is an absolute necessity; and, contrary to its being time wasted, it is time well spent, as by having a pot cleaned thoroughly before the plant is potted the foundation is laid to successful culture. Mr. Riding's method of whisking round with a piece of sacking is, to my mind, a job half finished. I have had sixteen years experience, and during that time have worked under some good gardeners, and Mr. Riding is the first man that I have heard of who calls pot washing a waste of time. I sincerely hope the younger generation of gardeners will not follow Mr. Riding's example. I, for one, shall still remain—A POT WASHER.

Our teachers when giving advice how to succeed try to instil into our minds the value of small matters, and I think the importance of clean pots, particularly clean inside, is one of the points they emphasise in successful plant culture. Yet here we have a teacher denouncing it as a waste of time and unnecessary. I have seen pots rubbed out with straw and rags, and have thought that it was a waste of time, because it did not get into the nicks, and still left dirt adhering to the sides. It is better left alone than done slovenly. I remember in my pot-washing days the dirty pots used to be piled up outside the potting shed until they were washed. I found them just the reverse of clean by Nature's washing; they used to become greener with standing outside. The next generation of garden boys, I have no doubt, will find pot washing just as conventional as we found it. Well, so much for that.

Our correspondent also states that he will write about crocking presently. Well, I do not know whether he is going to tell us that crocking is also a waste of time; but I'll agree with him if he says it is overdone. Quick growing stuff in summer,

or even spring, will do well without crocks, if watering is carried out rationally. By a little judgment much labour will be saved. Tomatoes, for instance, especially those for winter cropping, need not have their pots crocked until the final potting is reached, that is, where two intermediate pottings are done.—BROOMROD.

Nitro-cultures.

With reference to the so-called "purely nitrifying cultures" now being boomed by a section of the Press, it would appear that some writers on the subject have given considerable rein to their imagination; as, for instance, where the Clover-stuffed bedding of shipwrecked sailors, having been washed ashore, was stated to have been the means of turning an Australian desert into a rich grazing district. I trust you will allow me a small space in your valued paper to point out to such of your readers as may be interested in the subject, that while these nitro-cultures are by no means new to science, their application to practical husbandry is still a matter for experiment; and that in some cases, where tried on a large scale, they have not proved a success; probably owing to the fact that bacteria from artificial cultures are less patent for good than are the bacteria already abundant in all cultivated soils. I beg to suggest that the well-being and activity of these last-named micro-organisms—which cost nothing, being provided free by Nature—is of first importance to the gardener and farmer; and that every care should be taken to provide them with sufficient light and air by means of cultivation, as well as encouragement, in the way of suitable manures. At the same time avoid the application to the soil of all poisonous substances calculated to destroy these minute help-mates, and so render the soil less fertile.—R. BARNES, Malvern.

Comments on Recent Topics.

Several interesting topics have passed through the pages of the *Journal* of late from various correspondents, some of them of a controversial nature, some otherwise. The Chrysanthemum audit possibly appeals at this season of the year as much as any. When men of such high rank as Messrs. Godfrey and Molyneux test each other's views, the general reader is sure to find much to interest, if not to learn; for when such matured heads settle down analytically, they have necessarily to search out from the "store" something more dependable than simple memory can furnish; and this, presumably, both of our reputable friends have done, though their records would not appear to be in absolute harmony. I think the general reader, acting in the capacity of jurymen, is bound to admit that in the matter of size and quality of select champion varieties we certainly have progressed. There are, as there always have been, many of the new year novelties which live but a season. At the same time, as Mr. Godfrey points out, there are a few which, if one might judge from memory only, seem to have increased in size and refinement of character. One might reasonably expect this as a natural outcome of advanced breeding. I am not prepared to say that the enthusiasm of the present day is greater than ten or twenty years ago. I believe I am right in saying that a lesser interest is manifested in the large exhibition bloom, incurved and Japanese; and the once popular Anemone is almost deleted from the show schedule and catalogue too. The decorative and singles have made undoubted forward strides, both in extent and popularity. Let us hope the great champions will find and give us other facts that have long lain latent, and present them in a burnished freshness. They are sure to be spiced and appetising.

APPLES ON THE PARADISE.

An interesting subject has been found in the treatment of trees on the Paradise stock, and especially that of deep planting, so as to bury the union. Theoretically, it would at first seem opposed to principle to encourage roots from above the graft union. Few Apples succeed on their own roots, and thus the theorist may pardonably believe that, even when planted so that roots are given down from the scion, there is the same counteracting influence of the faster stock. Actual and careful observations would seem to refute this, especially in some hands and in some soils. Facts based on circumstantial evidence in fruit growing are sure to be combated.

CANKER IN APPLE TREES.

Sufficient has been said by your several correspondents to show that though an inherent disease, canker may be counteracted by intelligent cultivation. Mr. Molyneux can grow canker-free Ribstons by simply making ample soil stations, removing the subsoil altogether, and substituting it with surface materials taken, it may be, from the deer park, the meadow, or even the garden itself. Stagnant, clayey soils are those which invite canker, and especially when the drains are neither ample nor free. Surface cultivation such as practised by Messrs. T. Arnold and "H. D.," conduce to prevention of canker.—W. STRUGNELL.

Royal Horticultural Society.

The Report of the Council for the year 1907, with statement of accounts, has been circulated among the society's Fellows. We have extracted the following particulars. The annual general meeting will be held at the Royal Horticultural Hall, Vincent Square, Westminster, on Tuesday, February 11, at three p.m.

Report for 1907.

Quiet, steady progress has again marked the past year. The most important feature of the year's work, and one which, it is hoped, will be productive of far-reaching results, is the completion of the Laboratory and Scientific Research Station at Wisley. The opening ceremony was kindly performed by the Rt. Hon. Lord Avebury, P.C., F.R.S., on July 19th, when several representatives of Government departments, prominent men of science and horticulture, and members of the Surrey County Council, were present. The occasion was one of great gratification, for it brought the realisation of a long cherished, but long deferred desire for a scientific station under the direct control of the society, for research into the problems affecting plant life and plant disease at present confronting and baffling the gardener. Several very interesting speeches were delivered on the occasion, which will be reported in the "Journal."

RESEARCH AT WISLEY.

Among the subjects to be investigated are soil-sterilisation by steam as a means of destroying those pests of plants which live in the soil; the influence of sterilisation on the plants subsequently cultivated in the soil; the bacteria of the soil; etherisation of plants; and certain definite plant diseases. Each of these subjects will entail a large amount of laboratory work, as well as of experiment in the garden. Mr. Frederick Chittenden, from the Chelmsford Laboratories of the Essex C.C., and for some years secretary of our society's Scientific Committee, has been appointed Director, having under his care both the research work and the students' laboratory, the latter at present accommodating twenty-four young men. The students' training has thus been extended and improved, with a definite syllabus, and a time-table apportioning their work between the gardens for practical work and the laboratory for scientific study. The curriculum has received the approval of the Board of Agriculture, of the Science and Art Department, South Kensington, and of the Surrey County Council, who have asked the society to co-operate with their efforts to afford horticultural education in the county, they themselves offering a certain number of scholarships in the society's gardens to lads from the elementary and secondary schools of the county. The laboratory is recognised by the Board of Education as a technical school for grant, in conformity with whose regulations, Messrs. W. A. Bilney, J.P., E. A. Bowles, M.A., W. Marshall, V.M.H., Harry J. Veitch, V.M.H., and the Rev. W. Wilks, M.A., have been appointed managers. The question of the association of the society in its education and research work at Wisley with the University of London has, at the request of the Council, been brought before the authorities of the University by Sir Albert Rollit, who is a member both of the Council of our society and also of the Senate of the University, and, at the suggestion of the latter, the consideration of the subject has been adjourned for the moment, pending the appointment by the University of a Professor of Biology.

PRIZES FOR STUDENTS.

The Council acknowledge with heartiest thanks the receipt of the £100 offered by Mr. Arthur W. Sutton, J.P., V.M.H., to inaugurate a prize scheme for the students at the gardens; and also the gift of an excellent photographic outfit for use at Wisley from Mrs. Hornby Lewis. With reference to the prize scheme, which has not yet been definitely formulated, it is hoped that further donations will be forthcoming sufficient to secure an annual income of £15 to £20, so that the books or apparatus given as prizes may be worth working for, and serve as a real stimulus to the young men. The Council would also welcome the foundation of scholarships. Allusion is also made to the prizes of the Royal Dutch Bulb Growers' Association.

WISLEY GARDENS.

The new garden which was so generously purchased for the society's use by Sir Thomas Hanbury, V.M.H., K.C.V.O., is gradually being brought into thorough working order. Much, however, still remains to be done. Various trials of flowers and vegetables have been carried out, and Mr. George Massee, V.M.H., has conducted some original research work. Contributions of orchids have been presented to the gardens by Sir Trevor Lawrence, Bart., V.M.H., K.C.V.O., Sir Jeremiah Colman, Bart., Major Holford, C.I.E., C.V.O., W. A. Bilney,

Esq., J.P., P. Ralli, Esq., F. Wellesley, Esq., J.P., J. S. Moss, Esq., C. A. White, Esq., J. Sparkes, Esq., Messrs. J. Veitch, Messrs. Charlesworth, Messrs. J. W. Moore, and Messrs. George Bunyard. It is hoped that these will form the nucleus of a far larger collection in a few years to come. The number of visitors to the gardens admitted by Fellows' tickets during the year 1907 amounted to 8,818, as compared with 8,147 in 1906. This is exclusive of horticultural parties which were admitted by special arrangement, and would increase the total to over 10,000. The number would, no doubt, have been even larger but for the very unsettled weather of the summer of 1907. The work in connection with the office of superintendent has so greatly increased that it has been found necessary to appoint an assistant superintendent, and Mr. Arthur C. Smith has been selected for the post.

Here then follow references to the union of horticultural mutual improvement societies, to the report of the Genetic Conference, and to the obituaries.

MASTERS' MEMORIAL FUND.

The Council wish to commend the "Masters' Memorial Fund" to the support of the Fellows of the society. In the latter part of the year a meeting was held to consider in what way the late Dr. Masters' memory, and his work for scientific horticulture, could be most suitably perpetuated, and it was at once felt by all that the most fitting memorial would be to establish Foundation Lectures on the application of science to horticulture, to be called "The Masters' Memorial Lectures," similar to existing Foundation Lectures in law, medicine, and other sciences. The Council gladly accepted the suggestion, and a circular letter was sent out to the Fellows, in response to which about £320 has thus far been received. It is greatly hoped that further donations may yet be made to the fund, in order that three lectures at least may be adequately endowed, and so carry on Dr. Masters' memory to succeeding generations of gardeners.

The Report refers to Mr. E. A. Bowles, M.A., as the successor, upon the Council, of the Earl of Tankerville.

ANNUAL PROGRESS.

The Council are pleased to record that the total number of Fellows, honorary or corresponding members, associates and affiliated societies is now 10,000, which is believed to be the highest number belonging to any British Royal Society.

The losses by death in 1907 amounted to 156, making £216 odd in subscriptions. The losses by resignation are 520, amounting to £654 in subscriptions; the total loss is 676, equal to £870 9s. On the other side of the account there were 1,209 new Fellows, equal to £1,774 10s., and after deducting the loss, the increase in income is £904; and of Fellows, 533.

LETTING OF THE HALL.

The results of the hall lettings have been increasingly satisfactory. In certain months the demand for engagements is even greater than can be accommodated. One of the most notable of the tenancies of 1907 was the South African Products Exhibition, opened by His Majesty the King on February 23rd. Highly satisfactory testimonies to the commercial value of the hall have appeared in the Press, and the Council sincerely thank those Fellows, lessees, and others, who have done so much to draw attention to its excellence for shows, concerts, meetings, and all general purposes.

DEPUTATIONS.

The Council have with much pleasure received and accepted invitations to send deputations to the Cornwall Spring Flower Society on April 7, 1908; to the Jubilee Meeting of the Yorkshire Floral Society on June 16, 1908; and to the Durham, Northumberland, and Newcastle-upon-Tyne Society's show on July 1, 1908.

KINDRED SOCIETY SHOWS.

Many Fellows having expressed their disappointment at being excluded (except on payment) from the flower shows held in the hall by special societies, the Council have this year made it a stipulation that all special flower societies taking advantage as such, of the specially reduced terms for the use of the hall, shall admit all the society's Fellows' tickets free.

REDUCED RAILWAY FARES.

At the request of a large number of Fellows, the Council prepared a petition to the railway companies of Great Britain, asking for similar privileges of reduced railway fares to those granted to some other societies. The petition was signed by nearly 3,000 Fellows, and met with a courteous but decided refusal.

SIR JOSEPH HOOKER.

In June the Council had the pleasure of sending to Sir Joseph Hooker the hearty congratulations of the society on the attainment of his ninetieth birthday, to which Sir Joseph made a most interesting reply, which will be found in the account of

the opening of the Wisley Laboratory, to be given in due course in the society's "Journal."

With reference to the Temple Show, a "private view," open to ticket holders only, has been arranged for the second day of the show, May 27, from 7 a.m. until noon. There will be no admission by payment to this view. The Colonial fruit shows are again to be held.

The work done by a committee of the society consisting of Mr. Harry J. Veitch, V.M.H., Mr. F. J. Chittenden, Mr. A. D. Webster, and Rev. W. Wilks, M.A., to examine and report upon the trees at Burnham Beeches on behalf of the Corporation of the City of London, demanded considerable attention, and a report was issued in September.

REVENUE AND EXPENDITURE ACCOUNT.

EXPENDITURE.		£	s.	d.	£	s.	d.
To ESTABLISHMENT EXPENSES—							
Ground Rent	690	0	0				
Rates and Taxes	604	10	0				
Water Rate	86	14	9				
Electric Lighting	264	3	1				
Gas	25	8	9				
Insurances	48	5	0				
					1,699	0	10
Salaries and Wages	1,565	13	4				
Printing and Stationery	720	1	7				
Postages	368	11	11				
Fuel	53	14	0				
Architect and Auditor's Fees	105	18	7				
Gratuities	40	15	0				
Repairs and Renewals	288	8	4				
Miscellaneous Expenses	281	4	5				
					3,419	7	2
JOURNAL, PRINTING AND POSTAGE					3,485	8	4
PAINTING ORCHID PICTURES					43	10	0
LINDLEY LIBRARY					16	11	6
SHOWS AND MEETINGS—							
Temple Show	718	17	11				
Holland Park Show	627	8	0				
Special Autumn Show	265	13	11				
Labour	127	1	1				
Expenses of Floral Meetings and Conferences	192	9	2				
					1,931	10	1
PRIZES AND MEDALS—							
Committee Awards					468	16	8
WISLEY GARDENS—							
Rates, Taxes, and Insurances	124	19	7				
Superintendent's Salary	225	0	0				
Labour	884	17	10				
Trees and Shrubs	17	4	6				
Garden Implements	78	19	11				
Loam and Manure	80	12	9				
Repairs	31	17	9				
Fuel	233	4	0				
Miscellaneous Expenses	244	2	7				
					1,920	18	11
COST OF GROWING, PACKING AND DISTRIBUTION OF PLANTS TO FELLOWS							
					276	19	1
LABORATORY, WISLEY							
					273	12	7
DEPRECIATION—							
Hall Glass Roof, Furniture, Glass Houses (Wisley), and Plant and Materials					496	7	8
BALANCE, CARRIED TO BALANCE SHEET					6,477	12	8
					£20,514	15	1

INCOME.		£	s.	d.	£	s.	d.
By ANNUAL SUBSCRIPTIONS							
					13,266	13	0
ENTRANCE FEES							
					388	10	0
DIVIDENDS AND INTEREST							
					868	13	0
SHOWS AND MEETINGS—							
Temple Show	1,780	11	4				
Holland Park Show	605	4	1				
Special Autumn Show	25	0	0				
Takings of Hall Shows	249	8	0				
					2,660	3	5
JOURNALS AND OTHER PUBLICATIONS—							
Advertisements	697	19	1				
Sale of Journals	188	6	7				
					886	5	8
HALL LETTINGS							
Less Labour Expenses	2,252	3	6				
	200	12	8				
					2,051	10	10
PRIZES AND MEDALS							
					134	6	4
EXAMINATIONS IN HORTICULTURE—							
Amount received in Fees	90	10	0				
Less expended	61	12	0				
					28	18	0
WISLEY GARDENS—							
Produce sold	20	12	11				
Students' Fees	52	10	0				
Inspection of Gardens	156	6	11				
					229	9	10
					£20,514	15	1

Societies.

National Chrysanthemum.

The annual general business meeting was held in the Essex Hall, Strand, W.C., on Monday evening. Owing to a severe cold, the retiring president, Mr. Charles E. Shea, was unable to be present, and sent a telegram regretting his inability to attend. Mr. Thos. Bevan was voted to the chair. There was a good turn-out, a notable feature being the large number of younger men; who, to us, were strangers. There were several notable absentees, among them Mr. D. B. Crane and Mr. J. W. Moorman. The report and balance sheet were passed almost without discussion. Mr. J. W. Simpson referred to the expense of the "Year Book," and seemed to have expected a profit out of it! "Year Books" are given gratis to members, and form one of the inducements to join the society. Mr. John Green, the treasurer, also spoke, saying that he was keeping a keen eye upon the accounts, and was endeavouring to save wherever possible. Several economies had been effected. The officers for the ensuing year were then elected:—Sir Albert K. Rolit, Kt., as president; Mr. Bevan as chairman of the executive committee; Mr. Hawes as vice-chairman; Mr. John Green, as treasurer; Mr. C. Harman Payne, as hon. foreign corresponding secretary; and Mr. Richard A. Witty as general secretary, and each was thanked for his services during the past year. The outgoing members of committee, namely, Messrs. W. Cassidy, Walthamstow; P. A. Cragg, Hounslow; D. B. Crane, Highgate; C. H. Curtis, Brentford; A. J. Foster, Wallington; J. McKercher, Highgate; G. Prickett, Tottenham; A. W. Seabrook, Buckhurst Hill; and J. Tyler, Forest Gate, were re-elected, and in place of C. J. Ellis, J. B. Riding, and J. W. Simmons, who were not eligible by Rule V., the following were elected: Messrs. W. A. Cull, — Ballantine, and W. Newton; also, in addition, Messrs. R. F. Felton, J. Emberson, and G. Springthorp.

Mr. Harman Payne then proposed that the retiring president be elected a vice-president, and that a message thanking him for his excellent services be sent to him. This was spoken to by several members, and was carried with acclamation. The new regulation or alteration of rule, making the judges honorary at the society's exhibitions, was quietly passed. One member said that paid judges had not always given satisfaction, that the society had never had a penny by way of subscription from several who had acted as judges, and that members of the society's committees and others were surely quite competent to do the judging. The trade growers will judge the amateurs' and gardeners' classes, and vice versa. A deputy from the Eastbourne Society enquired whether something could not be done to encourage a juvenile section. At Eastbourne they had established prizes, and had found plants for the children. He thought it was a good way to get the children early interested in this fine flower—the Chrysanthemum. Mr. J. B. Riding, replying, said that several societies around London were doing the same thing, notably Leytonstone. The chairman also referred to what the London "Evening News" had done; though that had now fallen through. This concluded the business, and the meeting, which was one of the quietest for many years, only lasted fifty minutes.

Report of the Executive Committee for 1907.

During the twelve months seventy-seven new members (twelve Fellows and sixty-five ordinary members) were added to the roll, as compared with sixty in the previous year. Whilst it is satisfactory to note that there was an increase in the additions, your committee would point out that there is still room for a very great improvement in this direction. In February and March, 1907, some thousands of leaflets were distributed setting forth the objects of the society and the privileges and conditions of membership, and the best thanks of the society are due to those members of the trade who kindly gave valuable aid in the distribution of these circulars. The definite results did not realise the committee's expectations so far as new members were concerned, but many new exhibitors who were showing in 1907 for the first time can be traced to this source. This distribution of leaflets also served the useful and necessary purpose of keeping the society under the notice of growers throughout the country. At the annual dinner the treasurer, Mr. John Green, asked each member of the society to make a special effort to introduce one new member during 1908, and your committee cordially endorse this suggestion, which, if carried out, will have the effect of doubling the membership before the next report is issued.

Affiliated Societies.

The strength of the society must not, of course, be measured entirely by the number of individual members on the roll. The list of affiliated societies is in itself a tower of strength, and in this matter the National Chrysanthemum Society occupies a unique position amongst societies which are devoted to the culture of one particular flower. On December 31 there were

110 suburban, provincial, and Colonial societies on our register of affiliated societies. During the course of the year, several protests raised by exhibitors in connection with the shows of affiliated societies were submitted to your committee, and in each case the most careful consideration was given to the facts, and the committee's decisions were loyally accepted by



Tomato, Moneymaker.

the interested parties. The privileges and conditions of affiliation are set out in detail in the rules of the society, and are commended to the notice of those Chrysanthemum societies which are not yet identified with our work.

EXHIBITIONS.

Exhibitions were held in October, November, and December at the Crystal Palace, as in former years. Your committee are

pleased to report that the number of entries in the various classes showed an increase of about 33½ per cent. over the previous year. This is all the more satisfactory when it is remembered that many of the new exhibitors, although enthusiastic Chrysanthemum growers, were in reality maiden exhibitors so far as this society's shows were concerned, and it may therefore be reasonably hoped that the majority, if not all of them, will be competing again in 1908 with increased zest. The shows for 1908, which will be held at the Crystal Palace, have been fixed for Wednesday and Thursday, October 7 and 8; Wednesday, Thursday and Friday, November 4, 5 and 6; and Wednesday and Thursday, December 2 and 3. The best thanks of the society are again due to the stewards and other gentlemen who assisted at the shows, and also to Mr. G. L. Caselton, superintendent of the gardens at the Crystal Palace, who spares no pains to make the shows successful from every point of view.

MEETINGS.

Twenty-six meetings of the Executive Committee and sub-committees were held in 1907. Members were also in attendance at the society's shows at the Crystal Palace and Covent Garden, and the hon. foreign corresponding secretary also attended the French society's shows in November at Paris and Orleans. Seven meetings of the Floral Committee were held during the season, four at Essex Hall and three at the Crystal Palace. Mr. D. B. Crane was unanimously re-elected chairman at the first meeting, and presided over all the deliberations of the committee. The meetings of this committee are always of exceptional interest, and your committee would be pleased to see more of the members of the society availing themselves of the privilege of attending these meetings. During the season, 215 entries were recorded, and the following awards were made, viz:—thirty-two first class certificates and eleven commendations, whilst in several cases the exhibitors were asked to submit the blooms to the consideration of the committee on a future occasion. Silver medals were also awarded to Mr. W. J. Godfrey, Exmouth, and Mr. H. W. Thorp, Worthing, for interesting collections of new varieties submitted at the meeting held on October 28th. It is open to any person, whether a member of the society or not, to exhibit new varieties at these meetings, and the most careful consideration is given to the merits of every bloom submitted.

THE "YEAR BOOK."

As foreshadowed in the last report, the society's "Year Book" was issued early in 1907, and was well received by the members. The best thanks of the society have already been tendered to the editors, Mr. C. Harman Payne and Mr. Charles H. Curtis, and also to each of the contributors. From a financial point of view it must be admitted that the results were disappointing. All members received free copies, but the sales to the general public were very small, and the income from advertisements was not as large as had been hoped. For this reason your committee decided with regret that it was inadvisable to incur this expense again in 1908.

SPECIAL PRIZES.

The committee again desire to tender their best thanks to the donors of special prizes, viz.: The President (Chas. E. Shea, Esq.), the Ichthemic Guano Company, Mr. R. Sydenham, Mr. J. Williams, Mr. J. T. Simpson, Mr. W. Wells, Mr. F. G. Oliver, and Messrs. Cragg, Harrison and Cragg. Your committee also have to report with pleasure that further special prizes for 1908 have already been promised, and it is hoped that the schedule will be increasingly attractive to exhibitors.

FINANCE.

The ordinary income of the society showed an increase over the previous year, but having regard to the special expenditure the committee deemed it advisable to transfer £70 from deposit account to general account. They have, however, resolved to re-transfer not less than £25 to deposit account from the current year's income, and to continue the same policy until that account is restored to at least its original figure. The prize money in respect of all the shows has been paid. The balance at the bank, and the petty cash in hand, at the end of 1906 was £43 4s. 8d. The bank balance and petty cash at the end of 1907 was £21 11s. 11d. The money lying out, or due to the society, at December 31st last, was £63 7s., including in that sum £25 from the Crystal Palace Company for the December Show. The balance of assets over liabilities stands at £53 15s. 4d.

JUDGES.

Notice has been given of a resolution to be placed before the annual meeting to amend the rules of the society by omitting at the end of Rule 16 the words, "No member of any committee shall be eligible for nomination as a judge at any of the society's exhibitions," and inserting the word "honorary" at the beginning of the rule. The new rule will then read as follows:—"Honorary judges at the various exhibitions shall be appointed by the Executive Committee. The votes shall be taken by means of voting papers." Your committee unanimously support this amendment, which they are of opinion will operate to the advantage of the society.

Bath Gardeners'.

The usual fortnightly meeting of this society was held at the headquarters (Foresters' Hall), when Mr. T. Parrott presided over a very good attendance of members. Mr. F. L. Ashman (hon. secretary) and Mr. J. H. Piggott (assistant hon. secretary) were also present. Mr. Ashman presented the statement of accounts of the Chrysanthemum show, showing a net income of £148 9s. 2d., including £55 8s. from the sale of tickets beforehand, while £52 10s. was taken at the door. On the expenditure side there was prize money to the amount of £48 16s. They had in hand as a result of the show £11 13s. 7d., half of which was handed to the Royal United Hospital, while the other half, together with the balance of the previous show they had in hand, amounted to £11 4s. 9½d. Messrs. W. T. Rich and Evelyn G. Plank kindly acted as auditors. The chairman announced that their president had just forwarded them the sum of two guineas towards the funds of the society. Five new members were elected. Mr. Wall gave a very interesting paper on "Winter-flowering Carnations," and dealt with the various diseases known in Carnations, and how to avoid them. The best way of taking cuttings was also dealt with, and the lecturer gave examples. At the conclusion a hearty vote of thanks was accorded to Mr. Wall. The following was the prize list: C. Adlam (gardener to Mr. E. S. Howse) obtained 6 points for six pots of Freesias, while H. Sparey (gardener to Mr. R. Duckworth) obtained a similar amount for six pots of stove plants. J. H. Piggott (gardener to Mr. E. G. Peacock) was awarded 6 points for two bunches of Grapes, while Mr. Wall gained a first class certificate for a collection of Carnations.

Bristol Gardeners'.**BEGONIA GLOIRE DE LORRAINE.**

The best attended meeting of the present session was held on Thursday, January 30, at St. John's Parish Rooms, Mr. J. C. House in the chair. "Begonia Gloire de Lorraine" was the subject for discussion, and was very ably introduced by Mr. T. Parrott, representative of the Bath Debating Society. In his opening remarks the lecturer briefly referred to the origin of this beautiful winter Begonia, naming socotrana and Dregei as its parents. The best mode of propagation, Mr. Parrott said, is by leaf cuttings, which are far preferable to stem cuttings, making better plants, because plants grown from leaves do not throw flowers in their growing period as they do from ordinary cuttings. Obtain well matured leaves in December and January, insert in boxes of sand or cocoanut fibre, with bottom heat of from 75deg to 80deg. Do not keep close, and water very sparingly. On the appearance of growths pot up into 3in, finally into 6in pots, using compost of two parts cocoanut fibre, one leaf soil, and one fibrous loam, adding sand and charcoal. The soil should not be made firm. Keep the plants in a cool house in summer, and flower them in a temperature of about 60deg. A good discussion followed, after which a very hearty vote of thanks was accorded. For three plants in flower Mr. Curtis was first, Mr. Wakefield second. Mr. Curtis was again first for two orchids, Mr. Spry second. A certificate went to Mr. Jennings for *Cypripedium villosum aureum*.—H. W.

Beckenham (Kent) Horticultural.

On Friday, the 17th inst., Mr. J. B. Hunter, of the Elmhurst Gardens, Bickley, gave a lecture on "Peach Culture." There was a good attendance, and the practical instruction was very closely followed, and evoked a very lively discussion. A tree suffering from "silver leaf" under the charge of the lecturer has been completely cured by lifting the roots and applying artificial manures liberally—i.e., Peruvian guano, basic slag, &c.; and another case came out in the discussion, where it was said a cure was effected by a liberal application of lime to the roots. At the close a hearty vote of thanks was accorded Mr. Hunter.—T. C.

Vegetables.**Tomato, Moneymaker.**

The horticultural world has seen many good things in Tomatoes, the result of the popularity of this fruit. Now we have another in the variety Moneymaker, which Messrs. Dickson and Robinson, of Manchester, are sending out. It is

exceptionally fruitful, carrying clusters of from ten to eighteen; the fruits are of markedly uniform size, an average of six or seven to the pound. They are handsome in shape, and of beautiful bright red colour, and deliciously flavoured. The flesh, moreover, is stated to be almost free from seeds. The

**New Culinary Pea, Lusitania.**

plant possesses a fine robust constitution. In the words of Messrs. Dickson and Robinson: "Market growers will find it very substantially increase this source of their income; and in the garden a variety characterised by so fine a combination of qualities is sure to become quite indispensable."

Another New Pea.

Yet another new culinary Pea! Lusitania, the variety here illustrated, Messrs. Dickson and Robinson have had under trial for a number of years, and they introduce it this year as a decided acquisition to main-crop varieties. The long curved pods contain nine to ten specially fine peas of delicious marrow-fat flavour. Of robust constitution and very productive, it is one of those varieties which are eminently useful. Distinctly in its favour is its height, which is but 3ft.

Horticultural Science.

R.H.S. Scientific Committee, Jan. 28th.

Present: Mr. E. A. Bowles, M.A., F.L.S. (in the chair); Professors Percival and Boulger; Rev. W. Wilks; Messrs. W. Outhbertson, H. T. Güssow, C. T. Drury, G. Massee, W. C. Worsdell, G. Gordon, E. M. Holmes, A. W. Sutton, J. Odell, A. Rolfe, J. T. Bennett-Poë, J. Douglas, F. J. Chittenden (hon. sec.), and numerous visitors.

INHERITANCE OF PIGMENT IN PISUM SATIVUM.—Mr. C. C. Hurst, F.L.S., communicated the following note from Mr. E. A. Bunyard, of Maidstone, on "The Inheritance of Pigment in *Pisum sativum*." "The green and yellow colours of the cotyledons of *Pisum sativum* were selected by Mendel as one pair of constant differentiating characters, and from their apparent alternative inheritance the theory of gametic purity was deduced to explain results obtained in this species. The lack of any definite examination of the two colours in question led me to make some chemical and photo-chemical experiments as below, the pigments of the cotyledons alone being considered. The green pigment is, of course, chlorophyll, and thin sections mounted in glycerine show the chloroplasts well, and give the well-known 'hypochlorin reaction' when treated under the cover glass with glacial acetic acid. An alcoholic extract also gives the well-known bands in the red when spectroscopically examined, and the fainter bands in the blue and violet. The yellow colour is due to a pigment of the xanthophyll series, pigments which are always found in association with chlorophyll in the green parts of plants. The point, however, which is of importance is the gradual fading of the green (Sachs' 'Degradation of chlorophyll'), and the presence of the xanthophyll. The green chloroplasts, as the seeds attain maturity, gradually lose their green pigment, and when it has entirely vanished they are left in the cell as pale yellow globules. The yellow xanthophyll has, however, been present from the beginning, and the disappearance of the chlorophyll green has merely rendered it visible. The simultaneous presence of the two colouring matters can be demonstrated in this way. When a number of green cotyledons are steeped in alcohol a green extract, as referred to above, is obtained, and this fluid retains its green colour only so long as it is kept from light. When it is exposed to daylight, or even gaslight, it rapidly loses the green colour and fades to a yellowish tint. Upon examining this spectroscopically it is found to have absorption bands in the blue and violet identical with that of an alcoholic extract made from yellow cotyledons. This fading of the green is seen in the autumnal colouring of leaves, and in an inverse order the slow development of chlorophyll when etiolated plants are exposed to light. These facts, I venture to think, render it necessary to modify Mendel's original conception in this special case, as it is evident that the conception of a factor for green and one for yellow, and the alternative inheritance of each is hardly in harmony with the facts. As all cotyledons pass through the green stage, and certain only pass through to the yellow, I would suggest that the factor may be not a factor of 'quality,' but a factor which extends or limits development." Commenting upon the foregoing, Mr. Hurst wrote, "The above note by Mr. E. A. Bunyard is a valuable contribution to our knowledge of the nature of Mendelian characters in Peas. According to Mr. Bunyard's results, green Peas contain invisible yellows at all stages of their development, while yellow Peas contain green in the early stages only. A yellow Pea may, therefore, be regarded as due to the presence of a factor which causes the green to fade at an early stage of development, while in the green Pea this factor is absent. The Mendelian units concerned are therefore not simply yellow and green, as Mendel supposed, for all green Peas contain the yellow element as well as the green, but would appear to be rather the presence and absence of a factor which causes the green to fade."

HYBRID BRASSICAS.—Mr. A. W. Sutton read a paper which he illustrated by means of lantern slides, upon "Hybrid Brassicas," giving details of a large number of interesting experiments which have led to important results, although no forms of commercial importance have been produced. It is particularly interesting to note that *Brassica Napus* (Rape) would not cross with *B. oleracea* (the Cabbage, thousand-headed Kale, &c.), nor would *B. rapa* (the Turnip and Swede); and of further interest is the fact that the Kales Ragged Jack and Asparagus Kale would not cross with the Cabbage group, but crossed with *B. Napus*, thus indicating that they were nearly related to that species. In all the crosses made, where crossing could be accomplished, the seedlings proved to be as a rule somewhat like both parents, and were practically all alike. Reciprocal crosses, however, did not always give identical results, but a question put by Mr. Chittenden elicited the fact that the same individuals were not always used in making these reciprocal crosses, i.e., the seed parent in the one case was not always the pollen parent in the other. In the second generation,

segregation occurred in every case where it was possible to obtain seedlings (many of the F₁ generation proved sterile), and plants approaching in appearance the original types were produced. Thus when Ragged Jack Kale was crossed with Swede in the first generation plants somewhat intermediate were produced; but when seed from these was sown, of the resulting 198 plants, 160 had bulbs, 38 had none, 142 had Swede-like foliage, 38 had Ragged Jack-like foliage, and 18 were intermediate. In some cases the figures obtained indicated that the characters segregated in the simple Mendelian proportions of 3 to 1, or 9 to 7, but it seemed evident that in other cases the matter was more complicated. In some of the crosses it is interesting to note that the hybrids developed a purple colouration, though in the foliage this was not to be seen in either of the parents. In the discussion that followed, Prof. Percival and Messrs. W. Outhbertson, J. W. Odell, and C. T. Drury joined, and it was remarked that in no case, although the type of plant was regained in the second generation, did the progeny approach in excellence of development the original parents; and, as Mr. Odell remarked, it was singular that the only plants that promise anything of commercial value among all the crosses raised were the result of more or less promiscuous interbreeding.

DISEASED PLANTS, INSECTS, &c.—Specimens of injured plants, &c., were received and will be reported on at the next meeting.

Young Gardeners' Domain.

* * The prize is awarded to Mr. Charles Coates, The Gardens, Hatley Park, Sandy, Beds, for his letter following:—

Culinary Peas in Pots.

Of all vegetables none are more welcomed than early Peas. To get these ready for the kitchen by the end of April do not delay purchasing one of the approved early dwarf varieties offered by the leading seedsmen. To be successful in the growing of Peas in pots, the soil medium should be a good mixture comprised of three-quarters fibrous loam, the top spit taken off an old pasture, the other part leaf soil and lime rubble, over this sprinkle soot and bonemeal, mixing them well together. Suitable pots should be no less than 8in in diameter, as they like a free root-run. For drainage, place one large crock over the hole; one will be ample if some half-decayed leaves are put over it, and when filling the pots with the soil put the roughest of the material at the bottom, and the rest moderately firm, to within 2in of the rim. If the soil be as I have already said, not too firm, you will be able to press the seeds far enough under with the finger and thumb: 2in apart, or one dozen in a pot. Fill the holes level again, and thin out the weakest to eight after germination. They ought to be grown in a light and airy house, where the night temperature is kept above 50deg, with 10deg rise through the day, a little more with sun heat.

An early Peach house or vinery will meet the requirements until the main occupants have grown and give too much shade. Remove them now to a later Peach house, where top and bottom air is given, as Peas derive much nutriment from free air. If the Peach house is syringed and closed in the middle of the afternoon it will aid their advancement. Much of their ultimate success depends on how they are watered. If the soil is moist when the seeds are sown, syringing the surface will do until the seedlings are showing, then give a thorough watering with a rose-can. Directly the pods are formed, feed the plants with weak liquid manure at first, with a stronger dose once or twice a week, and soot water afterwards. Care should be taken to have them staked before they lop over, using small Beech branches if obtainable, a little taller than the specified height of the plant. Peas frequently grow taller when grown in a moist atmosphere.—C. C., Sandy, Beds.

Onions.

Sowings of these can be made in boxes, and be put in a temperature of 60deg to 65deg. As soon as large enough prick off into boxes filled up with about 3in of good rotten manure and a layer of good turfy loam made pretty firm. Place in a warm temperature, near the glass, to keep them dwarf. Where Onions have to be grown this season, the land should have a good coating of soot and lime, then be forked well over. In March it should be neatly levelled and raked, then be given a good firm tramping both ways, and raked over again. The Onions as they grow should be gradually hardened off in cooler quarters in March, then be put outside about the first week of April, seeing the ground is ready. These should be planted not less than 15in between plant and plant, and 20in between the lines. Care should be taken when planting to keep a good ball at the roots, so as not to cause a check. A slight watering will benefit them. As the summer advances, keep the soil well

stirred between the lines with the hoe and clear of weeds. A good coating of old Mushroom-bed manure put between the lines will benefit them, or a good dusting of Peruvian guano about every fortnight will help them. In September they will begin to change colour, and should be pulled up and laid in the full rays of the sun, turning them over every morning to well ripen the bulbs. Never allow them to get a shower of rain, or the keeping qualities will vanish. *Ailae* Craig and Cranston's *Excelsior* are excellent varieties.—FRAXINUS.

The Conservatory.

I think that at this time of the year the conservatory and greenhouse looks nicer than at any other time. There are lovely *Camellias* and *Roses*; *Lachenalias* and *Asparagus Sprengeri* in baskets; *Lilacs*, *Staphelia colchica*, *Prunuses*, &c.; also *Narcissi*, *Tulips*, *Hyacinths*, and *Lilies* of the Valley. There is a large variety of other flowering plants, as *Coleus thyrsoides*, *Moschosma riparium*, *Libonias*, *Azaleas*, *Sparmannias*, *Cyclamens*, *Carnations*, *Cinerarias*, *Boronias*, *Ericas*, *Cytisus*, *Primulas* (one of the best of which is *P. kewensis*), and *Richardias*. *Violets* in pots are also very nice, but are often a failure owing to damping. This may be prevented by affording them plenty of air and careful watering. *Begonia Gloire de Lorraine* are also very showy, but are going over now, and are being succeeded by *B. Gloire de Sceaux*, and the tuberous-rooted varieties. When plants of the *Gloire de Lorraine* variety have done flowering they should be cut back so as to break out for cuttings (or many prefer leaves). There are also a few orchids blooming now, like *Coelogynes*, *Dendrobiums*, and *Phaius*, which all add to the beauty of the conservatory.—R. WADHAM, Quex Park Gardens, Birchington, Kent.

Ruellia macrantha.

Of the different species of *Ruellia* the above named is undoubtedly the best. It also possesses the merit of flowering throughout the winter season. Propagation should commence as early in the year as cuttings can be secured, using a light sandy compost, and placing the cuttings round the side of the pot; or they may be inserted in the fibre of the propagating case. When rooted, which takes about three weeks, they should be potted up singly into 60's, using a mixture of equal parts loam, peat, and leaf soil, with plenty of sand. Return them to the case for a few days until the roots become active in the fresh soil, when they should be removed to a house where a temperature of 50deg to 58deg is obtained, which will be found suitable. As soon as there are signs of growth, the points should be taken out in order to induce it to "break," and this operation should be repeated when the subsequent growths have made two pair of leaves, as this subject is a very "thin" grower, but which, by timely attention, is easily remedied. As the pots become full of roots, a shift into 48's will be required, using a compost slightly heavier than the previous, with the addition of some good fertiliser. A final shift into 24's will meet the requirements of this plant, as better results are obtained when the roots are somewhat restricted than is the case when too great a freedom is allowed. Green fly is the only enemy likely to trouble this subject, and this should be promptly dealt with when detected. With proper ventilation no shading will be required, as it is essential that the growths should be well matured to stand the strain of a long flowering period. Weak manure water should be given at frequent intervals during the flowering season. As they pass out of flower some of the plants should be slightly cut back and placed in a warm division to encourage them to break into growth, thereby to furnish the cuttings for next season's display.—R. HARGOOD.

Seeds.

With the advent of the year seed sowing becomes general. A seed is a remarkable body, and as such demands reasonable care. The seed, though it is in a quiescent condition, is endowed with life. When we consider the enormous, almost incredible, number of seeds and spores distributed by Nature in a year, we begin to wonder where they all go to. Not a tithe ever reach the adult stage. It is therefore highly creditable to our seed vendors that so large a percentage germinate. Many, indeed, are harvested under conditions far from ideal. The seed to grow must have a certain degree of heat, the maximum temperature required often varies with each species; from 40deg to 80deg Fahr. is suitable, however, for the majority.

Moisture is another important factor. After the seed coats are thoroughly wet very little is required till the radicle protrudes. Many seeds, as the Broad Bean, have sufficient food stored in their cotyledons to render them totally independent of soil in the early stages of growth. This is the critical stage with most seeds, as too much moisture causes them to be liable to the "damping off" fungus. When the soil becomes parched and hard, especially when very fine soil is used for the surface, the seedlings droop and receive a considerable check.

The other essential, besides heat and moisture, is air. Seeds to germinate require oxygen. A little experiment is

easily performed to prove this. Place a few Bean seeds in a bottle containing water, and cork tightly. After germination, plunge in a lighted taper, and it will be immediately extinguished. This shows the absence of oxygen, its place being taken by carbonic acid gas. This gas is heavier than air, and can be poured out into a vessel containing clear limewater, which will then take on a milky colour. If a Bean seed is examined it is seen to contain two fleshy seed leaves, and a small root, and bud between two coats. Hence it is a complete plant, and only requires the chemical elements to be started and it is off, so to speak. It is interesting to those who are so inclined, to watch the various bending and pulling movements of the young stem in its endeavours to place the leaves to the light.

Seeds are the ideally right forms of reproduction, and however advantageous it may be for us to reproduce by vegetative means, as by bulbs and cuttings, it is claimed that the latter has a weakening effect (*Chrysanthemums* are a good example), and that only by cross-fertilising and sowing the resulting seeds can strength and vitality be maintained.—G. H. O.

Violets.

I should like to add one more to the long list of letters that have been written on the growing of Violets. It is not my intention to go over the same ground as regards the giving of air, protection, and so on, as, of course, this part of the treatment is practically the same. All I want to do is to say in as few words as possible how they are grown here, and, I might add, with every success. About April 20 the frame is lifted and placed on a bit of well-prepared ground. The old plants are then broken up, and strong single crowns selected and planted in the same frame. The lights are now put on, and the young plants kept a little close and shaded. As soon as they are well rooted the frame is once more lifted off. From now, through the summer, the usual treatment is followed, weeds kept down and runners picked off, the plants never being allowed to suffer from want of water. About the first week in September the frame is once more lifted and placed over the plants; there to stay till the plants are raised again in the spring. Before closing I should like to say that although we have had long spells of damp, dull weather, the plants have hardly lost a leaf; and, in fact, have not needed any systematic picking over, which seems so necessary when they are lifted in September and planted in the frame. I might mention that the back plants are a good foot from the glass, and yet we have had an abundance of flowers.—Y. Z.

Early Potatoes.

A very important question in regard to the early Potato is the seed preparation. All through the winter our home-saved seed has been stored in a light place, secure and safe from frost. The skins are now of a dirty purplish green, by no means attractive in appearance, but in splendid condition. At the end of January the seed is set on its end, to cause one or two of the upper eyes to sprout strongly. The seed must now be kept in the light, or the sprouts will be weak and pale, instead of being nearly as thick as a pencil, and of a healthy purplish colour, with roots bristling at the base. For an early crop it is much more important to get the sets well sprouted than to plant too early. They may be planted on a warm border or other sheltered spot early in March, but without these the middle of April will be quite early enough. With well-sprouted sets earliness is secured, and the risks attending early planting are avoided. When planting time comes a good plan is to spread in the drills a mixture of wood ashes, soot, and leaf mould, as these encourage free rooting, and prevent closeness of the soil surrounding the tubers. The sets should be planted 1ft apart, in rows 2ft asunder, and about 4in deep. There are various ways by which the first crop of Potatoes can be hurried on; for instance, choosing a warm situation, such as a border facing south, also by vigorous earth-stirring from the time the crop is first seen to be fairly on the move. Prompt earthing is very essential, the first being done when the tops are about 6in above the ground. At this stage a dressing of sulphate of ammonia will prove very beneficial. Sprinkle a little along the ridges after the earthing is done, making a handful go about four yards. Among the early varieties the following will be found very suitable: *Duke of York*, *Harbinger*, *Sir John Llewelyn*, *Myatt's Ashleaf*, *Early Puritan*, and *Midlothian*.—GEORGE W. SIZER, Elsham Hall Gardens, Lincoln.

Trade Catalogues Received.

D. M. Andrews, Boulder, Colorado, U.S.A.—*Seeds of Rare Flowers from the Rocky Mountains*.

Dervaes Frères, Wetteren, Belgium.—*Seeds*.

Dobie and Mason, 22, Oak Street, Manchester.—*Seeds*.

Forbes, Hawick, Scotland.—*Hardy Plants*.

E. W. King and Co., Coggleshall, Essex.—*Seeds*.

S. F. Richmond, Ossett, Yorks.—*Chrysanthemums*.



Hardy Fruit Garden.

PLANTING.—During the past few days we have been enabled to push forward the work of planting bushes. There still remain several weeks in which planting may with safety be carried out. The season has been far from favourable for getting any quantity of such work completed, and it will be necessary to take advantage of every opportunity. A word may not be out of place as to the preparation of the land to be planted. When left until towards spring, there is at times a tendency to hurry the work through. Land in which Couch grass is allowed to remain with deep-rooting weeds, will cause ten times the expense to clean after, compared with what will be found necessary previous to planting. Those planters who are in too great a hurry to attend to these matters are sure to suffer for hasty, scamped methods.

PRUNING.—Much discussion has from time to time taken place relative to the value of pruning young trees after planting. We unhesitatingly advise planters to prune their trees before long, if they were planted in autumn. We should be quite prepared to cut back spring planted trees, unless they were placed upon a very dry site, and there appeared a possibility of the buds not breaking after the pruning. We see too many trees left unpruned each season after planting, to care to alter our convictions against such want of soundness in culture.

APRICOTS.—It is very probable that some of the difficulties usually encountered in the culture of these may, to a considerable extent, be met at planting time. Before planting takes place, the site, unless the soil and subsoil are of a very open nature, should be well drained, to ensure superfluous moisture passing quickly from the roots. No manure should be mixed with the soil, this is not needed; in fact, for a few years, Apricots generally make far too much wood. Unless the land is of a chalky nature, it will be advisable to mix plenty of old mortar with it at planting time, with a proportion of dry wood ashes. If kept root-pruned, the trees should come into bearing in due course; but when allowed to make rampant growth year after year unchecked, the trees are apt for a number of years to be very shy in cropping. There appears so far to be no certain cure for the branches dying suddenly.

STRAWBERRIES.—With bitter weather prevailing it may be possible to bring up arrears of work amongst these. Trim off decaying leaves, root out Dandelions, and other deep-rooting weeds, and lightly dig the soil between the rows of plants. Should the plants be weak, apply a dressing of manure previous to digging. Land for the spring planting of young Strawberries may at once be got in good order; or if the land has been prepared, plant at once when the surface of the soil is sufficiently dry for treading upon.—J. W., Evesham.

Fruit Culture Under Glass.

MELONS.—The seed sown as advised some weeks ago will now be ready to plant out, and there is no gain in leaving the seedlings too long in the seed pot. Indeed, the reverse is true, as the plants, given a little bottom heat, soon make headway. At the start, moisture at the root must be sparingly applied, and not too much overhead in dull weather, but this does not apply to other parts of the pit. This should be damped down several times daily. In planting, if the soil is very heavy, use some finer material round the roots, and as previously advised, a small mound will suffice at the start, additions being beneficial as growth is made. The temperature of the pit should range from 65deg to 70deg at night, and the bottom heat 10deg higher, but with genial weather the day temperature may be 70deg to 80deg. I do not advise too much bottom heat, as it runs the plants up weakly. After planting, give a slight shade for a few days, and give the plants stakes to hold them in position. In severe weather at nights, with the plants close to the glass, they benefit much by covering the glass outside. This maintains a more equable temperature and saves hard firing.

SUCCESSION CROPS.—Seeds should be sown for succession. The seed will now germinate more readily, and where these fruits are liked, a sowing may now be made every three or four weeks. By so doing, strong sturdy plants will always be available for planting out, to follow the earlier crops. Years ago splendid fruits were grown in ordinary frames, with manure only as the heating agency. This I will refer to in March, for summer fruits. Pot plants (I mean those fruited in

large pots on shelves) will require more soil as the growth increases. This should be good fibrous loam with some bone-meal added. With early pot Melons it is advisable to stop early to secure lateral growth, and to set the first blossoms, as pot plants make a shorter growth than those planted out.

CUCUMBERS.—The young plants raised as advised will now be ready to plant out, and these will soon respond to generous treatment. A gentle bottom heat of 75deg to 80deg, and the same temperature by day, with a drop of 5deg to 10deg at night, will give good results; and the plants delight in the warmth obtained by sweet fermenting materials, and in being grown as close to the glass as possible. Cover over the outside at night. A shallow bed will suffice at the start, say 6in of light fibrous loam, with the addition of leaf soil, wood ashes, or fine mortar rubble if the soil is at all heavy. If a large body of manure is used for heating, this should be turned over in the open several times, and be sweetened before placing indoors, and when well firmed and in position, place the soil in mounds. Encourage free growth after planting by affording liberal supplies of atmospheric moisture, and ventilate sparingly, closing the pit early after midday to husband the sun heat. As growth is made, train up and stop at 2ft, and train the side growths to fill in, care being taken to well furnish the lower portion of the trellis first.

TOMATOES.—Seeds sown as advised, the seedlings will now be ready to shift on, and at this date it is not wise to give a check in any form, so that careful potting and warm soil are necessary. The plants will do well in a temperature of 55deg to 60deg by night, 10deg higher by day in fine weather, and ventilate whenever favourable. Water must be given carefully at the start, and avoid high temperatures on cold days, as this causes a thin growth. The soil for pots or plants in beds should not be rich. Seeds should be sown for the main summer crop; and for this purpose the new Carter's Sunrise is a splendid cropper, and Veitch's New Dwarf Red, Sutton's Abundance and Maincrop are all excellent.—G. W., Brentford.

The Plant Houses.

CALADIUMS.—These handsome stove plants, with their brilliantly coloured leaves, are, or should be, a feature of the stove, or warm greenhouse in summer. Sufficient tubers to make a good display in early summer should now be started into growth. This may be done by placing them in shallow trays, or boxes, containing a mixture of two parts leaf mould, and one part coarse sand. In the propagating house, or early vinery, the tubers will soon commence to make roots. They should then be potted up singly in small pots, with the exception of the small growing sorts—argyrites for instance, which can be potted up several together. Use a compost of fibrous loam, peat, leaf mould, and sand, to which may be added a little broken charcoal. When large specimens are required, it is better to pot the plants up singly in the first instance, putting several together at a later date. The syringing and dampness in the house usually provide sufficient moisture till the bulbs start into growth. Although the foliage of the plants appears so delicate, they should only be shaded from the sun during the heat of the day, abundance of light being essential to develop the rich colouring of the leaves.

EPACRISSES.—Shorten the growths of these plants after flowering to within a couple of inches of the old wood. Place them in a heated pit with a temperature of 50deg to 55deg F. Syringe the plants on bright days. When the young growths are half an inch in length, the plants which require it can be shifted on into a size larger pot. The potting soil should consist of peat and sand, firm potting being essential.

BEGONIAS.—Quite a number of species and varieties are valuable flowering plants for the houses in summer and autumn. Having been given a short period of rest, the large plants should be top-dressed, and placed in an intermediate house. These include such well-known plants as *B. coccinea*, *B. echinocephala*, *B. fuchsoides*, and *B. President Carnot*. The young plants grown from cuttings rooted last autumn will be ready for shifting into the flowering pots. Three Begonias suitable for hanging baskets for summer flowering are *B. glaucophylla*, *B. Kewensis*, and *B. Knowsleyana*. Looking forward as the gardener always must be, cuttings of kinds suitable for flowering in winter should be inserted in February. Mention may be made of *B. Cobelle de Feu*, *B. Dregei*, *B. polyantha*, and *B. semperflorens gigantea* as suitable.

GENERAL REMARKS.—Pot the earliest rooted Chrysanthemum cuttings, placing them near the roof glass to assist in the development of sturdy plants. Fumigate Cinerarias previous to removing the earliest batch, which are now opening the first flowers, to the conservatory. Shake out and repot Gloriosa bulbs, starting them into growth in a temperature of 65deg to 70deg. Use a compost of fibrous loam and peat, adding broken charcoal and coarse sand.—A. O., Kew, Surrey.



PURCHASING BEE STOCKS (M. C. H.).—The safest way for a beginner to start is with a "head," or first swarm. By this means he will avoid all the pitfalls of disease or lack of condition, which only a practised eye can detect, but which beset the purchaser of secondhand stocks. Given a good season, a swarm should be able to establish itself, and provide some surplus for its owner, in its first year. The swarm, or swarms, should be ordered either from a recognised dealer, or from a neighbouring bee-keeper.

PEAR TREES HORIZONTALLY TRAINED (M. C. H.).—The trees, five years old, that have got too much ahead should have one leading growth retained to each tree, and this cut back to 12in or 13in of the current or last season's growth. This will give two side growths to form the horizontal branches. The horizontal branches already existing should have a shoot retained as continuation of each branch, and all other shoots not being spurs should be cut back to a couple of buds from their base. The stem continuation should be trained upright, and the side branches, of course, horizontally.

GROWING BRACKEN IN A WOOD (B. E.).—It is very little use attempting to get Bracken to grow under large trees that give a dense shade and render the soil dry as dust in summer. If there are fairly open places, the tops of trees not meeting, the Bracken will do fairly well. The best plan is to select the plants from the outskirts or borders of the patches, so as to secure clumps of a foot or more square, and with the rhizomes of the plants running outwards. Do not cut off their outer extremities. Plant these carefully, and not deeper, or very slightly so, than as when lifted, and about a yard apart. As the soil is very light and sandy, with a good portion of leaf mould on the top, there is every reason to anticipate success; only choose small plants, as advised, and give them the most open positions.

GRASS FROM TENNIS COURT (J. W.).—The grass is one of the "bents," we think that of the Fine Bent Grass (*Agrostis vulgaris*), a common weed on poor lawns and meadows, and in some cases quickly overruns the ground. The best means of riddance is stimulating the surface by a vigorous use of the rake. The severe raking, or on a large lawn, harrowing by a toothed harrow, heavily weighted and drawn by a horse wearing boots, the raking or harrowing being done twice in opposite directions, will be beneficial. But this is not enough. Nearly all lawns need some application of manure in spring, and these, thoroughly mixed with rich sifted loam or leaf mould, say 2 cwt of the manure mixed with four cartloads of soil, will suffice for an acre, from which proportions it is easy to decide the necessary quantities for any smaller area. The mixing should be done at least a fortnight before use. Spread the mixture evenly over the lawn, lightly applying the rake, leave it for a few days, and then roll down.

WINTER WASHES FOR FRUIT TREES (G. W.).—One of the best is that known as Collinge's, prepared as follows:—Caustic soda (98 per cent.), 2lb; softsoap, 4lb; paraffin, 5 pints; soft water, 10 gallons. The softsoap is dissolved in a gallon of boiling water, and while hot the paraffin is added and beaten up into a creamy liquid, then pumped with force through a fine spray nozzle into another vessel. The caustic soda is dissolved in nine gallons of rain water, and into this solution the paraffin emulsion is poured, and the two mixed together thoroughly. The wash is applied by means of a knapsack pump or sprayer, or other apparatus with a spraying nozzle, and always while the buds of the trees are dormant, usually after the middle of February. This spray fluid gives excellent results, and is substituted for the older caustic alkali wash of caustic soda and carbonate of potash, as less difficult and less dangerous to use. The salt-and-lime wash, to which you allude, is not a very definite preparation. Some use, or, at least, advise, twice as much lime as salt, and others vary the proportions. The following is the original upon which the salt-and-lime washes are based: "25lb of lime (unslaked), 20lb of sulphur, 15lb of salt, and 60 gallons of water. To mix the above, take 10lb of lime, 20lb of sulphur, and 20 gallons of water. Boil until the sulphur is thoroughly dissolved. Take the remainder—15lb of lime and 15lb of salt—slake, and add to the other preparation, adding enough water to make the whole 60 gallons. Strain, and spray on the trees, always when the buds are quite dormant." There is said to be good results from lime and salt wash alone, but, as before stated, the proportions are so vague that we refrain from quoting them.

SPOT ON VIOLET LEAVES (T. W. O.).—The leaves are affected by the disease known as Violet leaf-spot, and is caused by the parasitic fungus named *Phylloticta violae*. It is characterised by white rounded spots being formed on both surfaces of the leaves, several spots occurring on the same leaf, and then occasionally coalescing and forming irregular blotches, but with a definite margin. Sometimes the affection is so severe that the greater or whole part of the leaf is involved. The best safeguard is to grow the plants with single or fest crowns, plant fairly thinly in the frames, remove the oldest leaves, keeping so thin that air has free access, and giving air on all favourable occasions. The only thing we have found of any use has been dusting with a mixture of air-slaked lime and dust charcoal in equal proportions, together with removing all bad, or at least the most diseased, leaves and burning them.

RECIPE FOR MAKING A WEED KILLER (W. A. J.).—The most effective is the arsenical preparation made as follows: Dissolve 1lb of powdered arsenic in 3 gallons of cold water, boil and keep stirring; then add 7 gallons of cold water and 2lb of crushed soda; stir the whole well while boiling, and with a rose watering pot apply to the walk in dry weather, from March to May inclusive being the best time. The above ten gallons of arsenite of soda solution will be enough for twenty-five square yards, and an inclining board should be placed at the sides of the walks to keep the liquid off the grass or other "live" edging, otherwise they will be killed. Another recipe is carbolic acid solution, No. 5 quality, diluted with one hundred parts water; or 1oz carbolic acid to 5 pints of water, the solution being sprinkled on the paths in spring by means of a rose watering-can, which will not only destroy the weeds, but also kill ants and other pests that may be harbouring there.

VINE QUERIES (M. C. H.).—The Black Hamburg Vine just planted and cut back to the sill, should have all the eyes rubbed off but the three uppermost. This is best deferred until the buds break, and then the vigour will be concentrated on the growths retained. These may be confined to two, if you wish and have space for two rods, which, even on the spur system, should not be nearer than 4ft between. Or you may leave three growths, one as leader and to form the rod, this being allowed to grow as much as it may during the season, and then have its laterals pinched to one leaf as made. The other two shoots, one on each side, may be pinched at the sixth leaf, and the laterals stopped at first leaf. At the winter pruning the cane may be shortened to about 3ft, and the side growths cut back to two eyes. As to question 2: The Vines in the old house are not likely to break very strongly on account of the lifting and root-pruning. The canes may have a leader taken from the upper part of each, and be allowed to grow as space admits, pinching the laterals at the first leaf. On the other part of the cane or rod you may leave side growths at 15in to 18in apart.

PLANTS FOR A NORTH BORDER (T. P.).—You do not say if the border is shaded or otherwise by trees, or wall, or fence. If the former, it is almost useless attempting such subjects as *Antirrhinum*, *Lobelia*, and yellow *Calceolaria*; but if the latter, these would answer, or the hardier kinds of annuals could be used, such as *Calliopsis Drummondii*, 2ft; *Candytuft White Spiral*, *Cyanus minor*, 2ft; *Chrysanthemum coronarium*, 3ft; *Clarkia pulchellus*, 1ft; *Eschscholzia*, 1ft; *Godetia* var., 1ft; *Larkspur*, branching, 1ft; *Amaranthus caudatus*, 2ft to 3ft; *Malope grandiflora*, 3ft; *Nasturtium Tom Thumb* var., 1ft; *Shirley Poppy*, 2ft; *Sweet Sultan*, 18in. These, however, would not be so satisfactory as summer bedding plants, which you name, adding *Violas*. We suppose the article you mean is shale, when you mention pit-mound. This has a tendency to retain the moisture, weathering into a somewhat adhesive mass, but from the looseness underneath is not generally liable to become waterlogged. A dressing of lime is usually beneficial in improving the material's texture. We have used burned shale for walks, and found it one of the worst articles for growing weeds, and after frost being very sticking and clogging.

BLIGHT ON BEECH TREE (W. B.).—The white blight is due to the felted covering with which the female felted Beech cocoon (*Cryptococcus Fagi*) protects its body. Sometimes affected trees live on for many years; some we have seen healthy after a quarter of a century infection; while others in much less than that time have been totally destroyed. The first sign of infection is usually seen in the foliage, which becomes sparse or thin. The pest may be destroyed by treatment with paraffin emulsion, or the preparation known as Gillander's mixture. The use of a painter's burner has also been advised. For Gillander's mixture take about half a gallon of soft water, boil and dissolve about 1lb of common soap, add a handful of sulphur and a pint of paraffin, and about the same quantity of turpentine. Add about four gallons of soft water to this mixture and churn well together. One or other of these formulas should be applied with a good stiff scrubbing brush. Care should be taken to scrub the mixture well into the crevices. The dressing may be effected at any time between September and the first week in April, eradication depending upon thorough treatment.



Small Holdings and the "Daily Mail."

We have written many times on the subject of smaller holdings, and have chiefly emphasised one fact, viz., that the smaller the holding the greater the cost of the buildings required in proportion to the acreage. Of course, if you can obtain useful, but partially dismantled buildings, capable of easy reformation, in remote districts where land is cheap and labourers prefer a farm to wages, something might be done to create, or rather recreate, small farms.

Although born no longer ago than the exhibition year of 1851, the writer has had considerable experience of large and small holdings side by side in several parishes and counties. That experience goes to show, without any possibility of dispute, that in the real country districts the small farmer of twenty or thirty acres cannot exist without the help of the big farmer next door.

But we are all to be taught a new kind of wisdom in agriculture by the experimental small holding of the London "Daily Mail." It has proved a splendid advertisement, and very diverting to agricultural minds. The wisdom we are still waiting for; but perhaps we must not be impatient and "hustle history."

We said that the booming of small holdings by the "Daily Mail" was diverting to our mind. So it is; but alas! we fear that great numbers of people will be very sorry in the future that such a craze was ever started. In our opinion it is quite on a par with the Limerick craze.

Fancy trying to solve the problem of small holdings by an experiment with fourteen acres of land, the experiment to last for three years, and the tenant to be chosen from tens of thousands of applicants. We must once more make use of the Limerick as an illustration. We have often wondered how the brains of Limerick judges stand the strain of their arduous labours; therefore we shall willingly give the agricultural palm to the "Daily Mail" expert who succeeds in choosing absolutely the very best possible man to settle down on a fourteen-acre plot in the garden of Eden.

Now, we have been trying to have our bit of fun out of the "Daily Mail," but we give it every credit for honest intention, and we think that one great mistake has been made by it in emphasising the cry of "back to the land"—i.e., from the towns. We have had a good deal of experience of men leaving the country for the town, and of a great number of men coming back to the country. The latter almost invariably returned for health's sake; but some because, being pure labourers, they found the cost of town living too high for them. We are not surprised that the "Daily Mail" has tens of thousands of applications for its experimental millennium. The surprise would arise if there were not. A more genuine test would have been to buy, not fourteen acres, but an estate of 14,000, and offer a thousand small farms—not one only. There are plenty of estates in the market which could be bought at very reasonable rates, and could be cut up into small holdings as desired, but we fear they could not all be as favourably situated as the one but two miles from Grantham, or so easy to inspect.

We have not yet been told what the rent of the model farm is to be. It is to be fourteen acres, and house and premises have yet to be built. What is the land now? Grass? If so, and it is to be broken up and cropped, there will be a valuable store of plant energy to draw upon. The "Daily Mail" dictum is that, of the fourteen acres, only one is to be pasture; all the rest must be soilage crops, so that at least five cows shall be kept.

In a recent issue, the "Daily Mail" ventured to give an estimate of the gross produce of this bit of paradise, and it amounted to a little over £180 per annum. Very well; what will rent and taxes be? Forty pounds, we should think. Then there are the multitudinous expenses of even a small farm, which cannot be avoided: hire of machinery, &c., blacksmith's bills, extra corn and cake for the cows, if five are kept, as per the £180 estimate. In one number the "Daily Mail" suggested the keeping of a horse or two; so evidently the expert engaged is not particular about the cost of one horse; but if there were only one horse, without suggesting two, we doubt the feasibility of keeping five cows and a good lot of pigs on fourteen acres; but perhaps, being near Grantham, employment

might be found for the horse in bringing home wounded motor cars.

We mentioned above the point that the farm is for a townsman alone, and therefore means "back to the land." We believe ourselves that if small holdings are to be increased in number it will be by the aid of men who are now working on the land. The men who have stuck to the land and are now working on it are the most suitable people to be assisted. Men who have left the country for the towns, and have tired of town life, would be the least likely to stick steadfastly to hum-drum country work.

We noted that the "Daily Mail's" first applicant was a retired naval captain, and that another was a mechanic earning £2 10s. per week. The latter could surely know little of farming if he thought he could better himself by farming fourteen acres of land.

We fear that too many of the applicants will be like a man we spoke to this week, a working engineer and very near neighbour, a very clever workman who scorns to work for less than five shillings per day. He said that if working-men could get cheap land they would make it pay, and that he himself, if he could get three acres in this parish at £1 per acre, could make an excellent living, and never seek another job from anybody; but he would never take the same land at £2 per acre, because it would not pay. Well, he could not see that, if he made 25s. per week out of that land at £1, he would only be dropping 1s. per week by paying £2 per acre.

Work on the Home Farm.

We have had a week of thaw and mud, and although land work is still possible, it is done for the sake of doing it. We keep getting home little reminiscences of the windy frosts of the New Year. A four-ton truck of potatoes at 90s. on rail was frozen in transit, and instead of making £18, realised £9 12s. This raises a serious question for potato growers. It is not the first time we have suffered in the same way, and on one previous occasion from the same reason, viz., putting four tons of potatoes into a ten-ton box-wagon. If there is much room for air to enter frost is sure to enter with it, and it is most difficult to use a liberal amount of straw to prevent it.

These losses, although only occasionally occurring, lead us to think that either the railway companies, or farmers themselves, who have the capital, should provide frost-proof waggons for winter transit of potatoes. Buyers in the large towns might also do the same thing, but perhaps they would not be so enterprising as the farmers, for the farmers have to run more risk than the dealers will undertake. It would be easy to build waggons for everyday use which would keep potatoes safe from frost in the severest winter.

The changes from frost to thaw and back again have made the sheep folds again very bad, but a high wind helped to put things into better form. At present the lair is comfortable, but the wool must have lost in weight if not in quality.

It is difficult to know what to use as food for stock just now. Maize is as dear as ever, and with bran very scarce the horse corn bill is an expensive item. Of course, the natural rejoinder is, Why not use your own? Well, we do not care to give horses barley or wheat, and we grow very few oats or beans. We have always regarded oats as expensive horse corn, but even at 20s. per quarter they must be as cheap as maize at 28s. Horses work well on oats, but do not look fat enough to suit the farm lads, and we believe that a lean appearance tempts them to steal wheat, or use other things quite as harmful.

Trade and Miscellaneous Notes.

Alex. Dickson and Sons as Seedsmen.

We are all so impressed with the beauty and quality of Dicksons' Roses from Newtownards, Co. Down, that we might reasonably be pardoned for overlooking the large and increasing seed trade done by the same firm. The arrival of their catalogue, however, drew our attention more considerably to the seed business, and here we might safely say that an equal amount of energy and up-to-dateness is evident, as in their Rose trade transactions. Eight pages, on blue paper, are devoted to illustrations and descriptions of novelties in flowers and vegetables from all sources; and whatever is catalogued in a compendium of this kind is pretty certain to have some sterling points of merit. The catalogue also brings to notice the facts that the business of Alexander Dickson and Sons is many-sided, embracing the raising and cultivation of evergreens, ornamental shrubs, forest trees, Rhododendrons, hardy perennials, Roses, florists' flowers, and bedding plants. They have also florists' departments for the making-up of floral designs, one at their Belfast address (55, Royal Avenue), and another in Dublin (61, Dawson Street).

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THURSDAY, FEBRUARY 13, 1908.

State Forests.



THE question of afforestation, like the question of growing our own fruit, has been before the country for a considerable time; and after many years of waiting, the Government have at last been induced to embark, albeit temporarily, upon a scheme of afforestation. From a useful and stimulating little pamphlet that Messrs. Clibrans, of Altrincham and Manchester, have published, being reprints of articles that appeared in the "Manchester Guardian" toward the end of last year, we are reminded of the Governmental purchase of the Inverlever estate, of 12,000 acres in Argyllshire at a cost of £30,000, which is to be afforested with coniferous trees. The ground, we are told, is merely rough heather and moor, at present treeless and uninhabited. It is calculated that under systematic forest treatment, ten men will be permanently employed for every one man hitherto engaged on this estate. Of course there are sceptical people, and even the president of the English Arboricultural Society is reported to have said of the financial aspect of afforestation, speaking at the conference on the subject by the Board of Trade in 1902, that it was "the most distinct gambling in futures that can be imagined."

We would prefer to believe that the British climate, variable though it be, and British soils, though they may widely differ, are as good as the climate and soils of Sweden, Norway, Saxony, Switzerland, or Russia. A correspondent in the present issue pertinently enquires if there is not some connection between the amount of British waste lands and the numbers of her population that are declared to be constantly on the verge of starvation. There is, and must certainly be a connection. But we do not maintain that a development of forestry would necessarily do a great deal to remedy the unemployed problem, nor the problem of the underfed. But no one

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can deny that afforested waste lands and hill country would afford labour for a large body of skilled and unskilled labour, first in planting, and afterwards in the upkeep of the forests. Anyone who has read and carefully weighed the "Report of the Departmental Committee on British Forestry," published in 1902, cannot fail to be convinced that if national afforestation were taken up and skilfully managed it would become a great and profitable national asset, beneficial alike to the State and the individual.

Roughly speaking, there are not more than 67,000 acres of woodlands in the United Kingdom that are in possession of the Crown. Compare our modest 67,000 acres with the 10,000,000 owned by the State in Germany! The total area covered by woodlands in this country, both State and privately owned, is but 4 per cent. of the whole area of land. In France the percentage is 12; in Sweden, 27; in Germany, 33; and in Russia, 61. That this country is fully capable of producing timber equally as good as the countries mentioned, has been proved beyond dispute. "Thirteen years have passed," as Messrs. Olibrans tell us, "since we carried out for the Commissioners of Woods and Forests to Her late Majesty, the formation of an experimental plantation at a high elevation near Festiniog in N. Wales. Almost from the first, success was certain. At an altitude of 700ft to 900ft there have been growths on native Larch, Scotch Fir, Spruce, and some hard woods varying from 1ft to 3ft in a season. Larch planted in 1897-8 are now 12ft to 15ft in height. There has been a marked absence of disease, and the deaths have not averaged more than 10 per cent. The plantation is now a standing object lesson of the possibilities of Great Britain for timber production; its success is such that it affords every encouragement to the State and the private owner to proceed with afforestation, knowing that it may be made a sure and certain success."

If the critics desire facts in the form of incontrovertible figures, they have it in a letter by Mr. F. W. Symes:—"Germany obtains a profit of 8s. per acre on 35,000,000 acres of reclaimed land. The German State forests bring in £18,000,000 annually. The French lands supply to our Welsh collieries pit-wood to the value of £1,000,000 yearly. One merchant's contract for six months totalled 150,000 tons. . . . The German forests maintain a population of 400,000. Dr. Nisbet estimates that our three and a half million acres of waste land would employ 18,000 persons. . . . Our waste lands would cost some £20,000,000 to lay out in plantations, and would yield from £3 10s. to £6 per acre, exclusive of the cost of maintenance."

The value of the standing timber in England is estimated at just under thirty-five million sterling, yet the United Kingdom, according to Dr. John Nisbet, has three and a half million acres of waste land suitable for afforestation, though actually only 3.9 per cent. of the whole land is under trees. An example of co-operative action in planting is afforded in the Midland Reafforesting Association, whose president is Sir Oliver Lodge, which undertakes to clothe 30,000 acres in the Black Country with trees at a cost of only £5 per acre. The Bradford Corporation are also afforesting 9,000 acres of "catchment" land in Upper Niddersdale, and besides tending to assure a regular water supply, it is hoped that a profit of from 7s. 6d. to 15s. an acre might be made from the woods.

The chief obstacles to afforestation seem to be these: (1) That private owners hesitate to lock their money up in an investment when it means waiting ten, fifteen, twenty, or even thirty years for any return; (2) rabbits, which do damage to the extent of a million yearly; (3) high railway rates; (4) engine sparks; and (5) lack of adequate water supply.

Under State control, as on the Continent, it has been proved that forests yield a steady annual return—as much as 14s. per acre in the Hartz Mountains, which cannot be said to enjoy special advantages in regard to weather, soil, or accessibility. In Saxony, the net revenue is 22s. 6d. per acre, and many of the mountain forests in wild Silesia regularly yield £1 per acre. "Taking together both the good and the bad, the State woods of Germany, extending over 10,000,000 acres of land, produce 11s. per acre of profit each year, and they give employment to nearly 100,000 people." We, on our part, pay £12,000,000 annually to foreign countries for a class of timber "which we could profitably raise on our waste places at home."

"The price of liberty is eternal vigilance," is a truism that meets with acceptance from every person of experience. We pen this note mainly to draw attention to two excellent societies, both doing much the same work, namely, saving the people's land, and trying to add to the "open spaces" that are for public use and enjoyment. The two societies are the Footpaths and Commons Preservation Society, whose work is of a national character; and the Metropolitan Public Gardens Association, whose attentions are devoted with great success to the acquirement and laying-out of parks and open spaces, and to beautifying avenues and thoroughfares in and around London. We have frequently brought to notice the good work

of the Metropolitan Public Gardens Association, which so thoroughly deserves support and encouragement; and we likewise commend the objects and achievements of the Footpaths and Commons Preservation Society to the generosity of all. Reports of the work of both bodies will be found in the present issue.

At the annual general meeting of the Royal Meteorological Society the president, Dr. Mill, delivered an address on this subject. Dr. Mill is the director of the British Rainfall Organisation, and so he spoke of his own **Map-Studies of Rainfall.** work, and dealt with the subject of "Map-Studies of Rainfall." He said that the special problem which he had before him

was to determine the normal annual rainfall of the British Isles in relation to the general configuration of the land, and to ascertain how the rainfall of individual years and months, and even of the constituent showers was related to the normal. The most useful method of working towards this end is by the preparation and study of maps of rainfall. He then described the methods which he adopted in preparing annual, monthly, and daily maps of the distribution of rainfall, and also referred to cyclonic and thunderstorm rains. The rainfall showed an unmistakeable relation to configuration.

Dr. Mill, in conclusion, said: It happens that rainfall is not only the most difficult of all the meteorological distributions to map accurately, it is also that one which is of the greatest importance, for by rain the rivers are fed, and the rivers both water and drain the land. Every year makes clearer the vast national importance of accurate knowledge of the rainfall of a county, for the problem of the rivers is becoming acute. The growing populations of the great towns are tapping the upper waters and diverting the water from its natural channels, and at the same time they are polluting the lower courses with the waste of the factories and the streets. Toll is taken all along the banks of industrial streams for raising steam and carrying on the multitudinous processes of manufacture. There is sometimes anxiety as to whether the waterways can be kept sufficiently supplied to float the water-borne traffic or to fight the silting action of the tides, and there is growing alarm as to the possibility of fish traversing the depleted and polluted streams to reach their spawning beds. Of recent years the value of the water power which may be generated in the lonely and lofty places amongst the western heights of Great Britain, where the rainfall is large and unfailing, has been recognised.

In Ireland, too, the rainfall is an unrecognised source of wealth, which as yet has not been drawn upon to any appreciable extent. The increasing strenuousness of the struggle for the possession of large water supplies is producing in England, and especially in Wales, a great amount of local jealousy and strife, for the boundaries of parishes and counties coincide but rarely with water-partings, and the argument has been brought forward again and again that the rainfall of one county should not be diverted for the use of the inhabitants of another. The feeling is intensified when the boundary to be crossed is that of a historical division of national importance like the boundary between England and Wales; but I think that the map-study of rainfall can do something to suggest the lines on which such disputes should be settled.

Although the exceptional deluges of a thunderstorm or a great depression fall with equal and impartial heaviness on the hills of the west or the flat plains of the east, the common everyday rains are precipitated on the high lands and in the mountain valleys which cross the track of the prevailing wind in much greater abundance than on level and low stretches of country. Most of the rain is borne to our islands from the Atlantic, and when it comes torrentially it is of the air, and no boundary checks it. The largest annual falls come down on and near the water-sheds, because there the land produces its maximum influence as a rain compeller. From the high ground the rivers seek the plains, carrying off the excess of rainfall into the less liberally watered districts. The Dee, the Severn, the Wye, and the Usk restore to England part of the rains which the Welsh mountains have abstracted as the air passed over them. The high rainfall of the whole Pennine district, sometimes by circuitous routes across the comparatively dry plains of the east, swells the volume of fresh water that pours into the Humber. The Thames itself receives the comparatively high rains of the Cotswolds, the Chilterns, and the Downs, and forwards the water slowly through less and less rainy districts, until it reaches the sea in the driest part of England. Thus, I think, as least as good an argument can be drawn from this consideration of physical geography in favour of supplying the great towns of the east from the large precipitation of the west, as can be drawn in the opposite sense from the artificial divisions of political geography. It seems to me that care for the water supply of the country, coming as it does from the air that knows no bounds, across the land, is by no means a parochial, but in the fullest sense a national matter, and should be dealt with in the interests of the nation as a whole; the units of sub-division when such are required being the natural units of river basins.

**Cypripedium × Chapmani.**

A plant of this still rare hybrid *Cypripedium* was exhibited in flower at one of the recent meetings of the Royal Horticultural Society at Vincent Square, the owners being Messrs. Hugh Low and Co., of Bush Hill Park, Enfield. The price asked for the plant, we believe, was twenty-five guineas—an index to its merits. The form shown by Messrs. Low, and here figured, was particularly handsome, and was remarkable for the richness and depth of its colouring. The lip is deep rose-purple, as are the petals, though these are slightly less intense. The dorsal, in the typical form, is white, with interrupted lines and spots of maroon-purple. Here it is of a uniform rich deep purple, shading off at the upper edge to rose. The veins are intensified. It is one of the most attractive and beautiful members of the genus we have seen for a long time, and bears the name of Mr. H. J. Chapman, now head gardener to Norman C. Cookson, Esq. The parentage was *bellatulum* and *Curtisi*.

Cypripediums.

To those who intend to take up orchid growing I would strongly recommend them to begin with the autumn and winter-flowering section of the above popular genus. We have on previous occasions put forward the just claims of these useful orchids, and recently gave a list of varieties of the old *C. insigne* which has figured so largely in hybridisation, and with such good results, for we have only to quote the beautiful *Thalias* as examples. We might now supplement that list with the charming *Fairrieianum* hybrids—*Cyps. villosum*, *Boxalli*, *nitens*, *Lathamianum*, *Actæus*, *Leeanum*, *Euryades* (of which there are some finely spotted forms), *Harrisianum superbum*, and *Mrs. W. Mostyn*.

The season is now advancing, and when all fear of hard frosty weather has disappeared our thoughts will naturally turn towards repotting, and among the first to require attention will be the *Cypripediums* just referred to, as they pass out of bloom and start into growth. When repotting it is best to provide each plant with a receptacle sufficiently large to allow for two seasons' growth. This remark applies to larger specimens, and not to seedlings, which must be moved on as necessity arises till they reach the flowering stage. On the other hand, the constitution of the subject must be considered, whether it is a vigorous grower or otherwise, before actually deciding on the size of pot. A little experience and observa-

tion, combined with common sense, will soon teach the uninitiated this important factor in orchid culture.

No orchid appreciates a rich soil more than the *Cypripedium*, and it is a common mistake to permit them to remain undisturbed for years. The compost should be half fibrous loam, half peat, quarter chopped sphagnum moss, with ample silver sand and finely broken crocks to prevent the mixture from becoming sour and stagnant. All pots ought to be clean, and be filled one-third of their depth with drainage, over which is placed a thin layer of fibrous loam or sphagnum. Having chosen a root-bound plant, it is then carefully turned out of the old pot, and all dead roots and decayed compost removed before replacing it in another receptacle. Do not press the soil too hard, and see that the compost is worked well between the roots, and the crown kept a little below the rim to allow space for watering purposes.

It is sometimes noticed that big clumps gradually get weaker and stunted in the centre. Now, this is caused by starvation. In such a case drastic measures must be taken by first severing the connections between the shoots and pulling the plant to pieces. Each portion may be potted separately, or several be arranged together so as to form a neat and compact specimen. After repotting, give a good watering to damp the soil through, and keep the stages and immediate surround-

ings moist by frequent dampings with a water-can. A suitable temperature for the *Cypripediums* noted is from 60deg to 65deg F. by day, and 55deg to 60deg at night. Ventilation must be provided whenever outside conditions are favourable, and as the weather improves a slight spray overhead about midday will greatly assist the plants and help to keep them free from thrips and other insect foes.
—T. ANSTISS.

Cattleyas and Lælias.

At this time of year *Cattleya Trianae* will be pushing up flower buds, and will require a little more water, but care must be taken not to over-water them, or the flowers will come soft and weak. *C. Percivaliana* will have finished flowering, and will soon commence to make new roots, when the plants should be potted or top-dressed as the case may be. Nearly all the other varieties will still be resting, and will require very little water; just sufficient to keep them from shrivelling. Over-watering and damping is the cause of spot, which if it once gets a start in *Cattleyas* is very seldom cured. Keep the leaves and bulbs clean by sponging with soft soap and warm water. Nothing looks worse than *Cattleyas* or *Lælias* which are infested with scale, when, especially at this time of year, an hour or two each day could be spared for sponging.

A good many hybrid *Cattleyas* and *Lælio-cattleyas* will also be pushing up their flower spikes, and the same treatment applies to them as advised for *Cattleya Trianae*. Should any of these hybrids commence growing do not dry them to keep them back, but put them in a warmer house and encourage the young growth, and generally they will flower from both last season's bulb and the new one.—("The Orchid Review.")

**Cypripedium × Chapmani.**



A Selection from our Apple Election.

DESSERT VARIETIES.		
Name.		Season.
Beauty of Bath ... ..	...	July and August.
Mr. Gladstone ... ..	...	Mid-July and August.
Devonshire Quarrenden ... ..	...	August and September.
Lady Sudeley ... ..	...	August and September.
Irish Peach ... ..	...	Early August.
Worcestershire Pearmain... ..	...	September and October.
James Grieve ... ..	...	September to November.
Mother Apple ... ..	...	October.
Margil... ..	...	October and November.
*King of the Pippins ... ..	...	October to February.
Adam's Pearmain ... ..	...	November to January.
Mannington's Pearmain ... ..	...	November to February.
*Cox's Orange Pippin ... ..	...	November to April.
Allington Pippin ... ..	...	November to February.
*Blenheim Orange ... ..	...	November to February.
*Ribston Pippin ... ..	...	November to February.
*Claygate Pearmain ... ..	...	January to March.
Scarlet Nonpareil ... ..	...	January to April.
Sturmer Pippin ... ..	...	March to June.
CULINARY VARIETIES.		
Name.		Season.
Lord Grosvenor ... ..	...	August and September.
Lord Suffield ... ..	...	August and early September.
*Potts' Seedling ... ..	...	August and September.
Ecklinville Seedling ... ..	...	September and October.
Stirling Castle ... ..	...	September.
Grenadier ... ..	...	October.
*Warner's King ... ..	...	October and November.
Bismarck ... ..	...	October and November.
Peasgood's Nonesuch ... ..	...	October to December.
Tower of Glamis ... ..	...	October to December.
Newton Wonder ... ..	...	November to May.
Lane's Prince Albert ... ..	...	November to April.
*Blenheim Orange ... ..	...	November to February.
Lord Derby ... ..	...	November and December.
Golden Noble ... ..	...	November to January.
Norfolk Beauty ... ..	...	December and January.
Bramley's Seedling... ..	...	December to April.
*Dumelow's Seedling (Wellington)	...	December to June.
Alfriston ... ..	...	January to March.
Annie Elizabeth ... ..	...	March and April.

* Subject to canker.

Carriage of Fruit to Birmingham.

ALLEGED PREFERENCE OF FOREIGN PRODUCE.

Mr. Justice A. T. Lawrence, the Hon. A. E. Gathorne Hardy, and Sir James Woodhouse—the Railway and Canal Commission—on Tuesday, the 4th inst., heard an application by the Mutual Transport Company, of Guernsey, which was formed for the purpose of conveying fruit produce from Guernsey to the mainland, and by Mr. W. Entwisle, a Guernsey fruit grower, for a through rate between Newhaven and London, Birmingham, Manchester, and Leeds. They alleged that, by the present rates charged for carriage of fruit, the French grower who sent his produce to the same markets via Dieppe and Newhaven was unduly preferred and the Guernsey grower unduly prejudiced. The defendant railway companies—the London, Brighton, and South Coast and the London and North-Western—denied that there was any undue preference or prejudice. The case was argued in November last, and came up yesterday for judgment. Mr. Justice A. T. Lawrence, in delivering judgment, said there were two items complained of by the applicant—first, the charge made for the conveyance of French Tomatoes from Dieppe to Newhaven, and secondly, the charge for land carriage from Newhaven, it being alleged that the difference was 7s. 4d. per ton from Newhaven to Birmingham in favour of the foreign produce. As to the first point it resolved itself into a complaint that the freight charged for French produce by the steam vessels belonging to the Great Western Railway of France, but in which the London, Brighton, and South Coast Company had some interest, was too low. The freight, no doubt, was low, but the arrangement had been in existence for forty years, and had been found to work satisfactorily, and he could not see that, in this matter, there was any undue preference of the foreign produce. As to the land carriage, the difference of charge was admitted by the defendants, but they said it was due to the difference in the system of packing adopted respectively by the French growers and the Guernsey growers. The French packed their fruit in

cases, and the Guernsey growers packed in baskets with cross handles, and larger at the top than at the bottom, the result being that double the weight of French fruit could be got into a railway truck compared with Guernsey produce. If the Guernsey growers would, said the defendants, pack their fruit in cases, like the French, they (the defendants) would carry it at the same rate. Under all the circumstances, he found it impossible to hold that any undue preference of the French grower, or any undue prejudice to the Guernsey grower, had been proved. The other Commissioners concurred, and the application was accordingly dismissed.—("Birmingham Post.")

Sweet Pea Audit.

At the instigation of the National Sweet Pea Society, the honorary secretary each year prepares an audit of the bunches exhibited at the London shows, and the following tables are the result of that audit, and demonstrate the times any particular variety was shown. It is, therefore, a very fair guide to the general value and merits of the kinds in cultivation. The audit is extracted from the society's "Sweet Pea Annual," which contains many other interesting features, and costs 1s. 3d. post free. The first comparisons are as follow:—

YEAR.	CLASSES.	EXHIBITS.	BUNCHES.	VARIETIES.
1907	81	651	2390	205
1906	73	416	1949	152
1905	36	273	1826	119
1904	29	258	1561	107
1903	28	128	991	90

These figures show a big increase in classes, a large addition of exhibits, and about 400 more bunches than at any previous show. There was also an increase in the number of varieties exhibited, and though this was to be expected at such an enlarged exhibition, there is nevertheless a feeling of regret that the increase in this respect is so large. We do not improve as one could wish, and an average of 11.65 bunches per variety is a poorer showing than the 15.34 bunches per variety in 1905; that is, if the reduction of varieties is to be regarded as progress. Some may urge that the lower average of bunches per variety is progress, because it indicates activity on the part of raisers, and argues for a wider interest and lack of monotony in the show.

The averages of bunches per variety, as shown by the various audits, are:—11.01 in 1903; 14.58 in 1904; 15.34 in 1905; 12.82 in 1906; and 11.65 in 1907.

GENERAL AUDIT.

VARIETY.	TIMES SHOWN.	VARIETY.	TIMES SHOWN.
Helen Lewis	135	A. J. Cook	12
Countess Spencer	130	Coccinea	12
John Ingman... ..	115	Horace Wright... ..	12
Dorothy Eckford	110	Agnes Eckford	11
Helen Pierce	97	Mrs. Chas. Foster	10
King Edward VII.	92	Phyllis Unwin	10
Nora Unwin	81	Rosie Sydenham	8
Mrs. Collier	73	Audrey Crier... ..	7
Black Knight... ..	64	Earl Cromer	7
Gladys Unwin	61	Gracie Greenwood	7
Jeannie Gordon	57	Hetty Green	6
Paradise	56	Prince of Wales	6
Frank Dolby	52	Unique	6
Queen Alexandra	51	Etta Dyke	5
Lady Grizel Hamilton	51	Evelyn Breadmore	5
Henry Eckford	47	Triumph	5
Mrs. Walter Wright	45	Lord Nelson	5
Navy Blue	37	Aurora	4
Mrs. Alfred Watkins	36	Beacon	4
Dora Breadmore	35	Duke of Sutherland	4
Sybil Eckford	35	Lady Althorp	4
Hon. Mrs. Kenyon	34	Lottie Eckford	4
Miss Wilmott... ..	32	Marjory Willis	4
Mrs. Hardcastle Sykes	31	Pink Pearl	4
Seedlings	31	Prima Donna	4
Duke of Westminster	30	Scarlet Gem	4
Bolton's Pink... ..	29	Tweedy Smith	4
E. J. Castle	29	vea Jeffery	4
Dainty	28	Codsall Rose	3
George Herbert	28	Elsie Herbert	3
Agnes Johnson	27	Gladys Deal	3
Shasta	27	J. T. Crier	3
America	26	Lady Sarah Spencer	3
Janet Scott	26	Lord Althorp	3
David R. Williamson	22	Lord Rosebery	3
Phenomenal	22	Maid of Honour	3
Princess of Wales	22	Mrs. Alec Ware... ..	3
Romolo Piazzani	22	Mrs. C. W. Breadmore	3
Evelyn Byatt	19	Othello	3
Duchess of Sutherland	17	Peach Blossom	3
Enchantress	15	Salopian	3
Queen of Spain... ..	15	Silas Cole... ..	3
George Gordon	13		
Jessie Cuthbertson	13		
Lady Cooper	13		

The general audit of 1907 presents a very different appearance to that of 1906. Helen Lewis and Countess Spencer, which were ninth and tenth in the later year, now stand at the top of the list; John Ingman comes up from thirteenth place to third position; Dorothy Eckford and King Edward VII. come from first and second places to fourth and sixth respectively, but they easily maintain their places as the best varieties in their colour classes, with 110 and 92 points as against 121 and 97 in 1906; the rise of Queen Alexandra and the exhibition of many seedling white varieties may be considered as partly answerable for this alteration of the position of such excellent varieties, but probably the chief reason is to be found in the great advance in popularity of the waved varieties during the year.

Helen Pierce has jumped from 33 points to 97, and now takes fifth place. Mrs. Collier has taken a big leap upward; Black Knight keeps a steady position; Gladys Unwin falls away somewhat, and Miss Willmott drops from 72 points and fourth place in 1906 to 32 points and twenty-third place in the present audit. Nora Unwin takes a good position, with 81 points, the same number that Gladys Unwin, which has dropped a little, had in 1906. Paradise, Frank Dolby, Mrs. Hardcastle Sykes, Henry Eckford, and Mrs. Alfred Watkins are varieties that have come forward with a rush. Another interesting point is that no fewer than thirty-one unnamed seedlings were exhibited. The substantial positions taken by Shasta, America, and Janet Scott are evidence that these three good garden varieties are favourites with many growers.

FIRST PRIZE AUDIT.

VARIETY.	TIMES SHOWN.	VARIETY.	TIMES SHOWN.
Helen Lewis ...	24	Gladys Unwin ...	5
Nora Unwin ...	20	Henry Eckford ...	5
Countess Spencer ...	19	Lady Grizel Hamilton ...	5
Seedlings ...	18	Mrs. Walter Wright ...	5
Frank Dolby ...	14	Princess of Wales ...	5
John Ingman ...	13	Shasta ...	5
King Edward VII. ...	12	Dora Breadmore ...	4
Mrs. Alfred Watkins ...	11	Evelyn Breadmore ...	4
Helen Pierce ...	10	Romolo Piazzini ...	4
Dorothy Eckford ...	9	A. J. Cook ...	3
E. J. Castle ...	9	Audrey Crier ...	3
Mrs. Collier ...	9	Agnes Eckford ...	3
George Herbert ...	8	Coccinea ...	3
Mrs. Hardcastle Sykes ...	8	Dainty ...	3
Queen Alexandra ...	8	Elsie Herbert ...	3
Black Knight ...	6	Enchantress ...	3
Jeannie Gordon ...	6	Etta Dyke ...	3
Duke of Westminster ...	6	Janet Scott ...	3
Paradise ...	6	Jessie Cuthbertson ...	3
Phenomenal ...	6	J. T. Crier ...	3
		Navy Blue ...	3
		Tweedy Smith ...	3
		Vera Jeffery ...	3

The audit of the first prize exhibits includes 378 bunches and 102 varieties, as against 261 bunches and 64 varieties in 1906. Varieties do not invariably hold the same relative positions in the general audit and the first prize audit, and this year the differences are very marked. Helen Lewis holds first place in each case, but here Nora Unwin displaces Dorothy Eckford as the best white, though with insufficient points to triumph altogether, the points being $110 + 9 = 119$ for Dorothy Eckford, and $81 + 20 = 101$ for Nora Unwin. Next year another young lady will be striving for premier place as the best white—which will win? Plenty of opportunities for comparison are afforded by the two audits, such as those between Mrs. Alfred Watkins and Mrs. Hardcastle Sykes, Romolo Piazzini and Navy Blue, but these can be easily made by the reader.

A most interesting point is the average number of bunches per variety in the first prize audit. The figures are as follows:—

YEAR.	BUNCHES.	VARIETIES.	AVERAGE BUNCHES PER VARIETY.
1907 ...	378	102	3.70
1906 ...	261	64	4.07
1905 ...	244	73	3.34
1904 ...	217	62	3.50
1903 ...	216	71	3.04

This is not so good a showing as in 1906, but nevertheless a good one compared with previous years, and also relatively to the averages in the general audit. It suggests that the most successful growers pin their faith to a moderate number of varieties for exhibition purposes.

The Chrysanthemum.

This flower, generally supposed to have come from Japan, says a northern paper, is recorded to have been fashionable in China some 3,600 years ago. The dresses of the Chinese empress and her court were embroidered with its blossom as far back as 1795 B.C.

NOTES & NOTICES

Sir Albert Rollit.

At the annual meeting of the National Chrysanthemum Society, held on the 3rd of February, Sir Albert Rollit, LL.D., as we stated in our report, was unanimously elected president of the society, a position which he formerly occupied. Sir Albert Rollit is also a member of the Council of the Royal Horticultural Society, and was for some years chairman of the Hull Botanic Gardens.

The Market Gardeners', Nurserymen's, and Farmers' Association.

In connection with this society Professor E. S. Salmon, F.L.S., will deliver a lecture, with lantern illustrations, at the Royal Horticultural Society's Hall, Vincent Square, Westminster, on Tuesday, February 25, at 3 o'clock in the afternoon, on "Some Fungus Diseases of Potatoes."

January Weather at Desford, Leicester.

The past month has been fairly dry, rain falling on only ten days, on seven of which less than 0.08 fell. The greatest amount (0.29in) was registered on the 6th; the total for the month was 1.08in. The first few days were bitterly cold; a strong N.E. wind prevailed for several days, keeping the temperature below freezing point all through the day. The minimum recorded was 13deg on the 5th, and the maximum, 55deg, on the 27th. The mean temperature of the month was 35.9deg, which is below the average. The frosty weather has been welcomed where manuring and digging yet remains to be done.—L. D.

Presentations and Prizes at Newport, I.W.

On Saturday evening Mr. W. W. Sheath (Ventnor) was elected to preside at the monthly meeting of the Isle of Wight Horticultural Association, held at the Literary Institute, Newport. Messrs. W. Tester and H. Stephenson (Freshwater), the adjudicators in the prize essay competition for young gardeners, reported the result of the competition, the first prize and Royal Horticultural Society's certificate of merit deservedly going to Mr. H. E. Downer (Brooke Gardens) for his admirable essay on Chrysanthemums. The essays written by Mr. Charles Herdridge, Spring Hill, Ventnor, on "Winter-flowering Pelargoniums," and by Mr. J. S. Holding, Bonchurch, on "Two Good Winter-flowering Plants—Poinsettias and Cyclamens," were awarded the Royal Horticultural Society's certificate of merit. In accordance with the wish unanimously expressed by the members at the annual meeting, a pleasing presentation was then made to the hon. secretaries, Messrs. A. W. Kime and C. H. Snook, consisting of a handsome nickel-plated reading lamp to Mr. Kime and a fountain pen, with accessories; and purse to Mr. Snook. The presentations were made in felicitous terms by Mr. T. Collister (Steyne Gardens, Bembridge). Messrs. Kime and Snook suitably and gratefully acknowledged the association's kind appreciation of their humble services in the presentation of such handsome and useful gifts, which they would always highly prize. Then came the reading of a paper on "The Cultivation of Exhibition Onions," by Mr. Jackson (gardener to Mr. H. Linington, Wroxall), who was the winner of the Morgan Richards challenge cup. In the regretted absence, owing to indisposition, of Mr. Jackson, the paper was read by Mr. Kime, and it was generally voted to be one of the best and most practical papers which had been read before the association. A most interesting and instructive discussion followed, those taking part including the chairman, and Messrs. T. Collister, E. C. Goble, W. Tee, J. Downer, W. H. Dyer, W. Pascoe, C. H. Snook, C. Morgan, A. Kime, and others; the value of the use of powdered charcoal, wood ashes, and soot as a protection against pests being emphasised by the principal speakers. The exhibits included some well flowered pots of the new double blue Lobelia, Kathleen Mallard, from Mr. C. H. Snook, of the Westhill Gardens, Shanklin, and of Gear's beautifully coloured photograph of a part of the picturesque grounds at Westhill. Mr. Snook was thanked for his exhibits.

"Gardens of Roses."

Mr. Geo. Gordon, V.M.H., will deliver his illustrated lecture under this title at the Royal Botanic Society, Regent's Park, N., on Thursday, February 20.

Royal Meteorological Society.

An ordinary meeting will be held at the Institution of Civil Engineers, Great George Street, Westminster, S.W., on Wednesday, February 19, 1908, at 7.30 p.m., when the following papers will be read: 1, "Formation of Snow Rollers," by Charles Browett; 2, "Comparison of Ship's Barometer Readings with those deduced from Land Observations," by Ernest Gold, M.A., F.R.Met.Soc.

Weather at Belvoir Castle, January, 1908.

The prevailing direction of the wind was S.W.; total thirteen days. The total rainfall was 0.90in; this fell on 14 days, and is 0.89in below the average for the month; the greatest daily fall was 0.15in on the 8th. Barometer (corrected and reduced): highest reading 30.609in on the 20th at 9 p.m.; lowest reading 29.007in on the 8th at 9 a.m.; mean of 9 a.m. and 9 p.m. readings 30.137in. Thermometers: highest in the shade 56deg on the 27th; lowest on the screen 11deg on the 5th; mean of daily maxima 40.58deg; mean of daily minima 28.29deg; mean temperature of the month 34.43deg, which is 3.12deg below the average; lowest on the grass 7deg on the 5th; highest in sun 94deg on the 27th; mean temperature of the earth at 3ft 39.61deg, which is 0.33deg above the average. Total sunshine sixty-eight hours ten minutes, which is ten hours forty-nine minutes above the average; there were twelve sunless days.—W. H. DIVERS.

Hooker's "Icones Plantarum."

Founded by the late Sir William Hooker in 1837, this publication has now reached the second part of the twenty-ninth volume and the 2850th plate. This part contains the figure of *Cymbogon citratus*, Stapf, which was first published in the "Kew Bulletin" for 1906, but the letterpress is here limited to a Latin description and the synonymy of the plant. Sir Joseph Hooker contributes the description of *Impatiens dorstenioides*, Warb., syn. *Trimorphopetalum dorstenioides*, Baker, a very singular plant, native of Madagascar; and two plates are devoted to the illustration of *Cordeauxia edulis*, the "Yeheb" nut of Somaliland. The majority of the figures, however, are of Chinese plants, chiefly belonging to the Lardizabalaceæ and the Hamamelidaceæ. *Sinofranchetia* is a new genus of the former group. *Parvatia* and *Holboellia* are reduced to *Stauntonia*, of which seven species are figured and eight described. Of the Hamamelidaceæ, *Sycopsis*, *Distylium*, and *Altingia* are revised, and a number of new species described. *Peglera capensis*, Bolus, is a neogeneric type, doubtfully placed in Legnositideæ, though it has also evident affinities with Simarubaceæ.—("Kew Bulletin.")

Bolton (Lancs.) Horticultural Society.

At the monthly meeting of the Bolton Horticultural and Chrysanthemum Society, held at the Spinner's Hall, St. George's Road, on Tuesday evening last, Mr. R. Smith in the chair, the subject was "The Cultivation of Fruit Trees in Pots." The lecture was by Mr. H. Sayer, of the Grange Gardens, Bromley Cross, Lancs. He maintained that fruit trees in pots had many advantages over trees planted in borders, as they could be kept better under control, and a greater variety could be grown in less space. The cultivation in pots had been practised over fifty years; he had some that had been grown in pots over thirty years. He strongly advised plenty of room for every branch and leaf, to obtain all the light and air possible. He strongly advised heated houses, particularly in spring, when the trees were in bloom, as the atmosphere could be kept in a buoyant condition. If in cool houses at that stage the atmosphere would on many occasions become stagnant; and condemned a confined atmosphere at any time. A hearty vote of thanks was accorded to Mr. Sayer on the motion of the secretary, and seconded by Mr. W. Williams, bringing another most excellent meeting to a close. The next monthly meeting is the last of the session, and one in which great interest is centred, the subject being the "Cultivation of Herbaceous Plants" by Mr. R. Saul, of Preston.—G. C.

Guildford (Surrey) Gardeners' Association.

The usual fortnightly meeting of this association was held on Tuesday, February 4. Mr. W. Hogden presided over an attendance of fifty-nine members. Mr. W. F. Binfield, gardener to F. F. Smallpiece, Esq., Guildford, gave a most instructive and practical lecture on *Cyclamen persicum*. A very animated discussion followed, in which many members joined, and much useful information was gained thereby. A very hearty vote of thanks was passed.—J. G.

Beckenham (Kent) Horticultural Society.

On Friday, the 31st ult., with Councillor Murray-Hyslop presiding, Mr. F. W. Price, librarian to the society (in the absence of Mr. W. J. Marlow through illness, who was to have lectured on "Spring and Summer Bedding"), gave a capital lecture on the Auricula. Mr. Price is well known as a very successful grower and exhibitor of these plants, and his remarks included hybridising to obtain seed, and their culture from this point to the exhibition table. Hearty votes of thanks were accorded both lecturer and chairman.—T. C.

Small Holdings.

Sir Edward Strachey, in the House of Commons, gave Mr. Corrie Grant some interesting information on Tuesday about the demand for land under the Small Holdings Act. So far as information (which is daily being supplemented) has come to the Board of Agriculture, over 4,700 persons have applied for nearly 87,000 acres:—

County.	Acres Applied for.	Appl. cants.	County.	Acres Applied for.	Appl. cants.
Bucks	5,353	253	Bt. fwd.	35,382	2,320
Camba	4,631	641	Lancaster	1,250	95
Chester	67	39	Lincoln		
Cumberland	—	17	Holland	7,276	346
Derby	610	24	Kesteven	2,368	159
Devon	1,858	98	Lindsey	2,007	75
Dorset	2,300	—	Norfolk	5,000	—
Durham	2,742	161	Oxford	10,235	516
Gloucester	3,722	162	Rutland	1,200	58
Hereford	2,951	131	Somerset	8,300	600
Herts	1,500	—	Suffolk, E.	842	40
Hunts	6,000	430	Suffolk, W.	725	33
Isle of Ely	2,000	360	Wilts	6,000	—
Isle of Wight	853	44	Worcester	5,923	438
			York (W. Riding) ...	465	18
Carried forward	35,382	2,320	Totals	86,973	4,709

Sir Edward Strachey went on to say that the Statutory Committees were in every case carrying out their duties with energy and despatch, and landowners in all parts of the country appeared ready to assist in the matter. The Board, said Sir Edward, have every reason to be satisfied up to the present with the way in which the Act is working.

Plants in Flower at Glasnevin.

The following plants are now flowering outdoors at Glasnevin:—*Adonis davurica*, *Anemone Claudia*, *Arabis alba*, *Colchicum hydrophyllum*, *Crocus Fleischeri*, and several garden forms of the *Crocus*; *Eranthis cilicica*, *Eranthis hyemalis*, *Helleborus* in many species and garden hybrids; *Iris Danfordiae*, *Iris Tauri*, *I. unguicularis*, *I. unguicularis alba*, *I. Vartani*, and *Narcissus minimus*. The *Iris*es and *Narcissi* are in sheltered places at the base of south and south-west walls, except *Iris Vartani*, which is in the rock garden quite exposed. *Nocca stylosa*, *Primula acaulis corulea*, in several shades, and a fine deep yellow form of *P. acaulis*, which has flowered more or less all winter. *Scilla bifolia*, and hundreds of clumps of *Snowdrops* in the grass bank behind the Bamboos and elsewhere. Some of the *Snowdrops* in borders are also very fine, notably *Galanthus Elwesii*. Mention should also be made of *Leucojum vernum* flowering freely in the border near the main entrance. Of trees and shrubs there are *Cydonia japonica*, *Coriaria nepalensis* with many catkins opening; *Corylus avellana* and *Corylus colurna*, also with catkins. *Erica carnea*, *E. carnea alba*, *E. mediterranea*, *Hamamelis arborea*, *Jasminum nudicaule*, *Lonicera Standishi*, *Nuttallia cerasiformis*, *Rhododendron dahuricum*, *R. parviflorum*, also *Cornus mas*, and several forms of *Arbutus*. In the alpine house: *Saxifraga apiculata*, *S. Boydi alba*, *Sax. Griesbachii*, *S. rocheiliana*, *Scilla sibirica*, *Iris retic. Krelagei*, &c.—J. W. BESANT.

Cyclamens and Primulas at Reading.

Though one may visit the same collections year after year, there appears to be always something left to learn. For one thing, the varieties change, and one can never quite grasp all the particulars in any one visit. Messrs. Sutton and Sons never look back where the florists' Cyclamens or Primulas are concerned, and that is one reason why their extensive collections call for an annual inspection. Cyclamens are in the minority, as they might be, and yet still be largely grown, since Primulas now number 15,000 plants. This is an increase of at least 1,000 plants upon the preceding year, and speaks eloquently of the admiration bestowed upon the Primula by gardeners and owners of gardens.

The aim in the matter of Cyclamens seems to be at the present time to get longer-stalked flowers—flowers that will stand erect and gracefully above the bouquet of foliage. The

varieties—that section with drooping or incurved petals—because they prove unsatisfactory, and are really abortions upon the true Cyclamen flower. What they are devoting attention to is their Improved Fringed strain, the flowers of which are of the typical form, but have nicely fringed petals. The fringing is fine like hoar-frost in some, and frilled in others. This fringe or frill is touched with rose, carmine, crimson, or purple, which, as can be imagined, affords a pleasing, beautiful contrast against the white.

The Cyclamen seeds are sown as late as November, owing to other subjects occupying the houses till then. In order to save one shift each seed is sown at a distance of 3in from its neighbour, in shallow boxes, and the resulting seedlings can therefore grow to a nice size, with three or four leaves, ere they require to be disturbed for potting-up.

Of Primula sinensis varieties there are, as I have said, 15,000 plants, all or mainly in 5in and 5½in pots. These are staged in 375 batches, and each "batch" has one or more individual characteristics differing from its neighbours. A batch



Primulas at Messrs. Suttons'.

limit appears to be reached in the broadening of the petals, for the back petal, when very broad, cannot turn up past the stalk, and, of course, this causes irregularity in the flower. There is a section of Cyclamens with sweetly-scented flowers, but these are somewhat ragged. The colours are white, white with red base, and rose. But decidedly the most handsome varieties are the forms of Vulcan and the salmon-coloured kinds. Vulcan has smaller but distinctly deeper-hued flowers than Giant Vulcan; and Giant Crimson is also larger than Vulcan, and has big, round, fleshy green foliage. One cannot adequately describe the true colours of these varieties: they are deep port-wine crimson, of varying depth and intensity, though, of course, constant according to the variety. Seen when the sun shines upon the petals, the colour effect is rich, brilliant, and beautiful.

Then the salmons—Giant Salmon-Pink and Salmon Queen, also the Salmon Flushed (which, however, is not catalogued under name, but is offered in mixtures), are each charming. The first named is distinctly larger than Salmon Queen, which, however, has the more intense colour—a beautiful salmon-scarlet. Each has a neat, compact habit, and makes an ideal plant. Messrs. Sutton are not now cataloguing the Papilio

may contain from one dozen to several dozen plants. However, though one might be led to say there were thus 375 "varieties," only sixty varieties are catalogued. But surely five dozen good and distinct kinds of Primulas (stellata and sinensis varieties) leaves sufficient choice for even the most fastidious! In the mixtures, the "magnifica hybrids" are very popular. These are varieties and crosses from the old alba magnifica, in numerous colours, and particularised by the flowers having deeply convoluted petals, in a double series, which make them especially attractive. The now well-known "Duchess" type (which received an award of merit six years ago—a rare distinction for a Primula), has also been bred into the magnificas, and so producing the "Duchess-magnificas," a happy combination, comprising the peculiar zone of the Duchess flowers, and the frilled edge of the other kind. This strain has, moreover, the pretty "Moss-curl" leaves. The Duchess itself has given rise to a strain with its special zone around the eye, and in divers shades. These, we presume, are mutable; whereas The Duchess is quite fixed. Then there are the Giant Mixed varieties in crimson, white, and lavender, which are very handsome and choice.

Giant Pink demands a special reference. It has very large

and smooth flowers, of a soft pink. Crimson King and Royal White are also good and useful, contrasting well together. They are both sturdy, with large, bold flowers. There is also one called Giant Crimson, and still another which bears the name New Giant Crimson. My readers will be wisely advised if they will try the last named. Giant Crimson appears purple beside the New Giant Crimson, which, as seen a week ago, has every virtue: size, smoothness, substance, large truss, good habit, and rich crimson colour. It originated as a sport from Giant Terra-cotta, and has come perfectly true for three years. Of course, the Giant section requires intensive and careful cultivation. As seed-bearers they are said to be poor, and so scarce is the seed that it used to be sold at 5s. a packet of eighty seeds. Now the price is reduced to 3s. 6d. per packet; but considering the great merits of the plants, the cost is insignificant.

I have already named Giant Pink, and would join to it the names of Giant Terra-cotta, Giant White, Giant Royal White,



Mr. Robt. Fenn and his Namesake Potato.

and, of course, the New Giant Crimson. Then there are the blues, of which The Czar (a rich violet-blue), and Reading Blue (brighter and lighter than The Czar), are the most select. The latter and a good pink variety, furnish a charming contrast.

Double-flowered Primulas are perhaps not very common; but Pink Beauty, having a white ground, heavily peppered with pink, is a captivating flower. The Carnation-flaked variety, or varieties, are also most tasteful. The double whites, too, cannot be passed over.

Among the ordinary sinensis varieties of less distinction, but of more general utility, might be placed Brilliant Rose, which makes an excellent companion for Pearl (white). Crimson King and Lord Roberts (salmon), also are good, the latter being a better forcer, where a forcing treatment is required, than Crimson King; and, of course, Reading Scarlet is quite the

richest and most brilliant in reds, being fiery scarlet when the sun illuminates the flowers.

The "Star" or stellata varieties are not such favourites as one had imagined; at any rate, they are immensely outnumbered by the sinensis type at Reading. The Star varieties Lord Roberts (bright salmon-carmine), Light Blue and Dark Blue of the colour of *Saintpaulia ionantha*; White Queen (one form with green stems and leafstalks; the other, which is prettier, having dark stalks); also Star Ruby and Giant Carmine, are each excellent, and represent the best in this elegant section. It is needless to say that the plants throughout are all well-grown. A fact of great interest in the matter of pollinating the flowers is that a separate brush is used for each distinct batch. Thus about 400 of the tiny brushes are used, and when not in operation the brushes are carefully placed within a large envelope. Also for each cross that is made an entirely new brush is chosen in order to avoid all possibility of the introduction of undesirable pollen.—J. H.

A Nonogenarian Cross-breeder.

Mr. Robert Fenn, V.M.H., who now resides at Holmwood, Sulhamstead, near Reading, entered his ninety-second year on the 1st of February. Readers of the *Journal of Horticulture* of fifty years' standing scarcely require an introduction to "our oldest contributor," a contributor who still retains apparently the same vigour of mind he possessed a generation ago; but there are younger and newer readers who "do not know Joseph." Mr. Fenn began cross-breeding Potatoes a year or two after George Stevenson ran his first train between Stockton and Darlington, and, as our present photograph shows, he has not yet hung up his spade, nor given over raising new improved Potatoes. The tubers he holds in his hand are the Robert Fenn variety. Let's hope this is on a par with Peter Barr Daffodil. We have a breezy contribution from this famous raiser of Potatoes, but that must be held over for a little, and will lose nothing by that. On our own and readers' behalf, we wish Mr. Fenn other happy returns of his birthday.

Stove and Greenhouse Plants.

Stevia serratifolia (? serrata).

Among the many winter blooming plants which are grown in America for decorative purposes, we have few that are more profitable or more useful than this charming plant. For use in the conservatory or for house decoration, when grown in 8in pots, *Stevias* are most effective. It is rather remarkable that one so rarely meets with this plant in private or commercial establishments in Britain, and yet I find it to be one of the most largely grown plants in America. Certainly, few people realise its beauty and usefulness or it would be more largely grown in the Old Country. The *Stevia* here figured is of special value to those who require large quantities of flower during the months of December and January, as it can be used in combination with almost any kind of flowers for filling glasses or vases. When used in this fashion it gives a most charming effect, something after the style of the popular *Gypsophila paniculata*, and may be used with stems from 1ft to 5ft in length. The lustrous green leaves and beautiful feathery panicles of pure white flowers will be found to remain quite fresh, even when cut for over a week.

The cultivation is remarkably simple. When the plants have finished flowering, one or two are kept for stock. They are cut well back, and in a few weeks they begin to make young shoots, which are the best for cuttings, taken when they are from 3in to 4in long. If they are put into good coarse sand and given a slight bottom heat, they should be rooted in about two weeks. After they are well rooted pot them off into three's and place in a house where the temperature runs from 50deg to 55deg. When the pots are well filled with roots they may be removed into cold frames and kept potted on as they require it. As the weather gets warmer they may be kept fully exposed, and be given plenty of air and sunshine. Eight-inch pots are the most suitable size to flower them in, and as they are gross feeders they require a fairly rich compost. After they are well established in their flowering pots, frequent waterings with liquid manure will prove beneficial.

Housing the plants ought to be done as soon as there is any danger of frost, and if they are kept in a temperature of from 40deg to 45deg, will give an abundance of flower from the beginning of December until well on in January. When in flower the *Stevia* is a stout erect plant, from 4ft to 5ft in height, with round stems and with a graceful drooping mass of sweet-scented composite flowers, borne on small panicles. It is certainly a plant which, when once grown, is always grown.

—WM. McM. BROWN, Langwater Gardens, Mass., U.S.A.

Rockwork and Rock Plants.—IV.

In most cases the material for constructing rockwork is scarce, and recourse is had to imitation by means of brick burrs, that is, the misshapen lumps of brick formed in clump burning, and generally to be had at a trifling cost. These are built up into irregular rock-like masses with cement, and the outer surface is coated so as to completely hide the bricks, of which the artificial mass is formed. This outer coating of the cement may be shaded light and dark, so as to impart a more natural appearance. The shading is best effected by using some of the sand that has the natural colour, or as near as may be, of the rock striven to be imitated, the darker shades being obtained by using in the cement more or less of the black sand that has been used in the iron smelting furnaces. This is a rather difficult matter so as to have all the rockwork of a similar colour or shade, but it must be done (and is by rockwork experts), so that no part is either too light or too dark to have a natural appearance.

To attempt to convey an exact idea of how to construct a piece of rockwork that will have a natural appearance is about

as futile as to strive to impart the knowledge all-important to paint a picture. The best study for the construction of rockwork required for the purpose under consideration is to note how the stone intended to be imitated is conformed or stratified on its natural *situ*, and of its disposal in some moderate sized area or portion of alpine scenery of Nature's forming, in all cases being careful to make the well-being of the plants it is proposed to grow the primary consideration. This is paramount to all other matters; for though the rockwork may have a very imposing appearance as a work of art, its utility will depend upon its fitness for the growth of the vegetation introduced. Thus the rockwork will have sloping ledges in parts, the rock masses varied, projecting, receding, and inclining differently in a bold and striking way, to attract, concentrate, and keep alive interest, not only at particular times, but at all seasons. The rock plants must be given every advantage in respect of soil, the cavities or pockets, not regular, but irregular in places and in length and breadth, all allowing for the necessary depth of soil to be introduced for the growth of the plants, the soil resting on drainage material, and this on the natural or artificial substratum. Thus, whilst superfluous moisture may pass away, capillarity (the upward or outward passage of moisture) may have free play. This can be done without giving the construction that even, formal appearance which is so often seen, and so entirely mediocral or objectionably glaring and disproportionate to the extent of the area.

The introduction of water at the base of rockwork in the form of a basin or miniature lake, proportionate to the size of the rockery, and sufficiently easy in its outline to do away with all formality, is very desirable, as it will fulfil the double object of always providing a supply of water near at hand for such plants as require it in dry weather, and by its position will give a meaning to the necessity for deviation in the path that may encircle the rockwork. Nothing, however, is more paltry than the ponds formed in lawns, with the surroundings laid out with its walks and shrubberies in true landscape style.

When the rockwork is constructed by the side of water,

a path must be at the foot, or there must be some standing place, unless it happens that the water is so constructed as to enable it to be well seen from the opposite path. On this account it is better to carry out a sort of bay, round two-thirds of which the rocks can be so constructed as to form a kind of rough amphitheatre, so that those standing at the entrance, or near it, may see pretty nearly all without going nearer. There must be no uniformity in the construction of the rocks, and the plants selected for them must not be diminutive alpine plants that must be close before the eyes to be seen. For the fissures, as well as the dry and shallow receptacles for soil, shrubs, and even trees of appropriate kinds, may be planted. The tops of the rockwork must be composed of bold crags here and there, and the outline must be broken by gaps. Some of the pieces should be broad on the upper part, and form wide shelves, and at all parts the features should be large.

On the land side great attention should be paid to the natural construction, and the lower part, near the ground, may be strewn with bold fragments, among which plants of various sorts should be growing, while boulders may be disposed here and there at the foot. These and the crags should be bold on the land side, and the plants from top to bottom equally choice

and varied. If a mound of earth forms part of the height on the land side, it is perfectly natural, as in mountainous places the rocks protrude sometimes half way up, and generally in patches, up the whole face of the mountain. But in these there is nothing of the trumpery character of much rockwork done artificially, and so as to represent nothing in Nature, or even of the ideal in art.

With these general remarks, somewhat extended in order to enable those desirous of making rockwork to set about their work with right notions, we may proceed to the consideration of the plants. But the consideration of not having the means to form a proper rockery may deter some from not indulging in a class of plants for which they have a

peculiar liking. They therefore resort to a jumble of something, which by no stretch of imagination can be called rockwork, simply because no style of construction is adopted, and the shells, and even fossils introduced here and there, seem looking out, as well they may, with astonishment at the change which has been wrought by the hand of man. We may be pardoned in these expressions, for showing up prevailing faults is no bad road to improvement, and we have not told rockwork constructors what we dislike without also letting them know what we approve. We may, however, be wrong after all, and particularly if, as some insist, landscape gardening is subject to no rules, and cannot be reconciled to any principles, but depends entirely on the taste of the individual. If so, all we have yet done is to show that our taste differs very materially from that of many other persons constructing, or striving to form rockwork in gardens, where, in our opinion, it would be more in accord with taste and surroundings not to have it at all.—G. ABBEY.

Agricultural Education.

The Departmental Committee of agricultural education, of which Lord Reay is chairman, held meetings on the 4th and 5th inst., at which a preliminary discussion on the subject of the report was held.



Stevia serratifolia.

Notices of Books.

THE EIGHTH WOBURN REPORT. Spottiswoode, London.

This report, which reached us some time ago, does not seem to demand a very exhaustive notice. As a record of careful research it may be of value to the purely scientific investigator, but there are few fruit growers, or gardeners, who have either the time or inclination to study the elaborate tables prepared, or the precise and tedious methods by which the various spray-fluids have been tested and made more effective.

For these reasons we think the sale of the Report is likely to be extremely limited so far as practical growers are concerned. For them the most valuable page enclosed with the Report is that devoted to an advertisement which announces that a trade firm is prepared to supply the washes and insecticides recommended. Considering the time taken in preparing insecticides, and the difficulty in forming perfect mechanical mixtures, fruit growers generally have come to the conclusion that it is cheaper in the end to purchase the materials in a prepared and concentrated form, which they only need dilute with water before use. Undoubtedly, Mr. Spencer Pickering has done the fruit grower good service in the direction of improving upon the insecticides and fungicides formerly in use, and in arranging for them to be placed on the market. Just at present, however, growers are wonderfully well catered for in this respect, as the battle of the spray-fluids rages furiously. In vol. vi. we have a combined insecticide and fungicide which is creating a great stir, and is spoken well of by all who have used it (and some who have not). Then there is the lime, salt, and waterglass preparation, to which some attribute marvellous results. This also is being largely used. A most peculiar point in connection with the preparations above enumerated, is that the originators of each seem to have found the others in many respects unsatisfactory. Still, one must never expect human nature to be quite perfect.

The term "spray-fluid" is now generally accepted as being a more suitable one than wash when applied to insecticides. Mr. Pickering, however, still sticks to the latter term, and stoutly defends it. It is quite possible he may be technically right, but when one speaks or writes to the ordinary individual about washing trees or plants, the impression conveyed is that they should be thoroughly drenched, instead of being treated to a mist-like spray. It therefore seems to us that "spray-fluid"—which Mr. Pickering is pleased to term "the more clumsy composite noun"—is really the better term.

In one respect this Eighth Report resembles others which have preceded it from Woburn, for there are the usual innuendos at the Board of Agriculture, and a scornful disdain for the "crude methods" of investigation so often practised. This brings to our mind the following anecdote from which readers can draw their own conclusions: "A scientific egotist, when leaving home for a foreign land, left a favourite dog in charge of a friend. During the voyage he was continually worrying about the dog, and as soon as he landed he sent the following cablegram to his friend, 'Be sure and feed dog.' The friend cabled back, 'Have fed him, but he's hungry again. What shall I do next?'"

"THE ESTATE MAGAZINE."

The February issue contains an account of the Earl of Loudoun's Ayrshire estate, extending to nine pages. Then follow articles on corn—Oat, Rye, Wheat; on dairying, the decay of labour, items of gardening interest, science and agriculture, agricultural notes, the Highland pony, and on financial matters of interest to farmers. The forestry and correspondence sections always remain interesting, and make "The Estate Magazine" thoroughly representative of its title.

The Natural in Park Scenery.

The present illustration of a portion of the lake and surroundings in Greenwich Park shows how admirably Art can imitate Nature. Another good and well-known illustration is at Kew, the beautiful lake there having been artificially made under Sir Joseph Hooker's direction in 1879, we believe. Then a third noble example, greatly admired and appreciated by Londoners, is the lake at St. James's Park. The Serpentine in Hyde Park also has distinctly handsome and "truly rural" scenery. These several famous examples all go to prove that "rus in urb" (country in town) is not an impossibility. Even the largest city parks can have their quiet, shady nooks, their dingle of bushes and trees, their secret asylum for water fowls and wild birds, and nothing affords a readier means for such seclusive spots than a sheet of water skilfully planted around. Willows, Alders, Birch trees, the deciduous Cypress (*Taxodium distichum*), Cornuses, mounds of Rose species, together with a goodly array of aquatic plants, are all at command for this purpose. Notes on puddling and the general work of pond-making will shortly be published.



Growing Bracken in a Wood.

It would be well to add to your advice in this connection (page 141) that the work of lifting and planting Bracken should be done now, in the winter, while the fern is quite dormant. The soil should be well loosened, and care be taken that the growing ends of the running rhizomes are damaged as little as possible. This will greatly aid success.—C. T. D.

Canker in Apples.

"A Grower" and "H. D.," pages 58 and 86 respectively, allude to the cost of buying, carting, and placing 300 slabs per acre under Apple trees. In "A Grower's" case it is cheap, and simplicity itself. He has the best part of the material at his hand. Let him get a bag of cement, take of this one shovelful, add six shovels of sand, well mix, add water to make it of the consistency of mortar, have your hole ready, then spread this cement mortar evenly at the bottom of the hole; when set, plant your tree, and stake with three stakes, or use wire; and then mulch. This ground of "A Grower's" seems well adapted for inducing canker. The roots are almost certain to go down for food and moisture, unless prevented. I should like to ask him if holes were dug in the orthodox way for these trees? It seems like it, as they did well for a few years, which is invariably the case on unsuitable land. "A Grower" should ascertain if there is sufficient lime and potash, with a modicum of iron, in the soil. If these are not present they must be added. An experiment with a dozen trees would not be ruinous. I cannot see that there would be any difficulty in using a Dutch hoe under the Apple trees when on a mound. There is no occasion to draw down the soil to bare the roots.—J. EASTER, Nostell Priory Gardens, near Wakefield, Yorks.

"A Grower's" contribution to this subject (page 132) is extremely interesting, and shows the result of careful thought. I think, however, he does not take a sufficiently wide view of the subject. For instance, he writes, "Evidence in favour of root-pruning being a check to canker seems to me inconclusive. The assumption must be that canker is promoted by rampant growth; whereas if it is promoted at all, I should say that it is only by such growth checked by excessive pruning of the main shoots." Now, I am quite at one with "A Grower" in regard to the unwisdom of hard pruning when trees are growing strongly, and I know that trees so treated will be more liable to canker than others allowed greater freedom of growth, but no matter whether they are hard or lightly pruned, in some soils they will inevitably canker when the roots get into a cold and unsuitable subsoil. Then root-pruning, surface feeding, and treatment of the wound are sure remedies.

We must, however, remember that canker is also caused through lack of suitable food within the reach of a tree. I have often seen trees on light soils and dry banks badly cankered, and I have cured many growing under such conditions by adding fresh soil and feeding. If I had cankered trees growing on a light soil to deal with, after having cut away all diseased parts, and painted the wounds with Stockholm tar, I should apply the following mixture early in March: Three parts bonemeal, one part sulphate of potash, one part sulphate of ammonia, at the rate of 5oz per square yard, dressing the soil a little beyond the spread of branches. If the soil is deficient in lime I would dress with lime during the autumn. In private gardens where wood ashes are plentiful they should be used freely instead of the sulphate of potash.

With regard to soft growth being more liable to canker than firm wood, that, I think, has always been admitted, because unripened shoots easily peel in the bark, or split under the influence of frost, then the spores of the fungus easily enter. As to the market grower being well advised not to plant varieties liable to canker, the point is whether or not they are liable to do so on the particular soil he has to deal with. Some varieties do not succeed on certain soils, and in some particular districts, whereas in others they thrive splendidly, and every market grower should try to avoid planting those which are the least satisfactory in his soil, whether on account of canker or for other reasons. That, however, is no reason why other growers should studiously avoid planting varieties which fail in other districts. Take our own case. Cox's is supposed to require a good deep medium loam to grow to perfection; but our soil is a very stiff red clay, yet Cox's succeeds splendidly, shows no trace of canker, and proves the most profitable variety

we grow. Choice dessert varieties are the ones to make money if on soils where they are found to succeed.

"A Grower" informs me he has looked up the article by "J. W.," which I referred him to, but has found nothing in the way of a remedy for canker. If he means there was no method given so precise as to be suitable for all circumstances, one, in fact, which might be patented as a cure for canker, I agree with him; but the article showed what to avoid to lessen liability to canker, and how, under different circumstances, to treat cankered trees successfully. There is no remedy suitable under all circumstances alike; probably never will be.—H. D.

An important question in relation to canker is this: Is it known for a fact that the spores of cankered shoots or parings from diseased patches left on the ground can be conveyed up to the trees again to spread the disease? If so, how? When many of the small twigs are affected, quite half the work consists in picking up every one of them after they have been cut off, and laboriously gathering up also every bit of cankered bark cut off a main branch or the trunk. Sometimes a piece of

Statistics.

"You can prove anything by means of statistics," is the frequent assertion; and so you can if you handle them deftly. The confusion of thought usually prevailing is easily demonstrated, and not less the ease with which all statistics can be eliminated or over-ridden by broad statements, more universally applicable, without using any statistics whatever in their connection.

Starting from the nearest lesson, we have the reputed acreages of orchards and small fruits. There is an increase! It is magnificent! There is quite a boom! The thing is overdone! These and similar expressions made by journalists and others, according to their temperaments, do not appeal to the economist and others who think for themselves. The very first indispensable requisite for purposes of comparison and the drawing of inferences is the need of allowance for increase of population. As that increase is about one per cent. annually, when we proceed to comparing statistics we should reckon with this factor in confronting the past year with con-



Rural Scene in a Park near London.

a shoot flies to some distance when cut off, and it is difficult to find it. All large pieces cut off would be carted away in any case; but if it is not necessary to do the same with small ends of branches or laterals, the arduous work would be greatly reduced by not troubling about them.

Can you, Mr. Editor, tell me in a foot-note what is the best book giving the life-history of the canker fungus? Mr. Massee's book gives no details. In my last letter, second sentence, I was made to say (or by a slip of the pen I wrote) "if root-pruning be essential to the development of canker," instead of the prevention.—A GROWER.

[See Dr. Cooke's book published by the Royal Horticultural Society; and a new work published by Lane.]

I discover much talk about the canker in Apple trees; why not kill it? I had a Cox's Orange Apple tree given to me which was so bad I had to stake and rope it to keep its head upon the trunk. Now it is a fine tree, and brings forth splendid fruit. It is a nice, round, full-grown tree, yet the first owner put it on the waste-heap for burning.—CHARD-FUD-MARK, Yalding, Kent.

ditions ten years earlier. We should allow ten per cent., and come to the conclusion that unless these ten per cent. increases appear in acreages, we are actually not only not advancing, but stagnating, if not receding. When it is, therefore, shown that we have in a decade added 25,000 acres to a previous total of 225,000, and arrive at 250,000, we have added about ten per cent. in ten years, exactly in proportion to the increase of population, without any margin whatever. Our national exertions are totally inadequate to repel a steady increase of foreign encroachments. We need not deny ourselves the small comfort contained in the reflection that statistical increments are on improved methods. Yet when we see young plantations of the old-fashioned standard Apple trees, we have cause to shake our heads.

Our grandiloquent Board of Trade returns are always referring simply to such relative increases without that allowance for a correct comparison which increase of population demands, a relative increase frequently borne in mind in the returns of the Registrar General. The dust thrown into our eyes by means of such loose statistics is a serious reflection on the whole system of our national education that inflicts conventional dead

sums with no meaning attached to them on the reluctant mind of our youngsters, instead of the suggestions of "live" totals, in the handling of which intelligence plays a part, and would furnish an excellent discipline.

Our great bountiful Mother Nature is a consummate adept at establishing an equilibrium between all her antagonisms. It might strike the reflecting citizen that those proportions between waste land and the millions who are constantly on the verge of starvation are not fortuitous, but absolutely interdependent. Let our legislation be shaped so that those wastes become remuneratively productive, an operation which our responsive climate challenges, and all our insular disabilities will disappear as if by a magic wand; for puny man's imperfections are the direct cause of them all, and intelligent man assisting Nature would remove them.—H. H. RASCHEN, Sidcup, Kent, February 1, 1908.

Small Holdings.

No paper that I am acquainted with, and certainly no horticultural newspaper, has devoted so much consideration and space to the subject of small holdings as the *Journal of Horticulture*. For years I have watched with increasing interest its efforts on behalf of this rural and also national reform. Is it significant of the influence of the *Journal* that an Act for the promotion of Small Holdings has been passed, and that fruit cultivation as an English industry (another of its pet aspirations) is "booming"?

But it is your Home Farm correspondent's article in last week's paper (page 142) that I desire to refer to. Is your correspondent prejudiced against the interloping small-holder? Does he imagine that the small-holders, as a class, are likely to swamp his class—the larger farmers—or reduce his profits to vanishing point? Are his criticisms sincere, and the outcome of conviction? Here, in England, we have teeming populations. We can hardly get away from townships; they lie everywhere in our path. Yet with an everlasting demand for butter, eggs, milk, cream, vegetables, Potatoes, and fruit, both fresh and preserved, our countrymen and our larger farmers have failed to keep up supplied. The result is so well known as not to require to be repeated.

Was it not just last year or the year before that the Evesham small-holders discovered that a better climate had nothing to do with the Frenchmen's success over us in supplying early vegetables to the London and other markets? Did they, when visiting the neighbourhood of Paris by commission, not discover that it was the Frenchmen's methods, and not their better weather conditions, that enabled them to score? Your correspondent ought to be able to answer these questions, because the matter, as I remember, was all described in these pages at the time.

Take the case of France to-day—leaving historic Denmark alone for the nonce. Its broad acres are covered with small peasant farmsteads. The owners of them, to all outward appearance, are happy, healthy, and engrossed in their little businesses. Before the Revolution there were small holdings in France; but during the past hundred years their numbers have multiplied enormously. They pay; and how do they pay? Simply by the exercise of self-denial as a corporate family virtue; by the practice of economies which we here hardly understand; by the utilisation of inferior animals as beasts of burden and for the work of the fields, to wit, oxen and donkeys; and last, but not least, because the feminine members of the family do not hesitate to labour hard, equally with the men, in all the farm work. When would even a small-holder's wife or daughter employ herself at turning over yard manure, or in filling it into carts, in this country? The fact is, the women folk are superfluous, and may even be a virtual drag upon the English peasant farmer. They only want to do the most genteel tasks.

Then as to marketing, though there may be a co-operative system in vogue in parts of France, from my own observations it appeared that each small holder sent his produce to market at the nearest town, small or large, every day. The women play an important part in the carrying business, just as they do in Ireland, and in both countries the donkey and the little two-wheeled carts are chiefly relied upon for the work of distribution. In England we have grand ideas; so grand that we cannot stoop to the thought of employing donkeys, heifers, or the smaller horses—nothing less than a pedigreed Clydesdale will answer. Yet even in Sussex and in parts of Middlesex the ox is still to be seen at the plough. Given fair play, there is not the slightest doubt in my mind that the British small-holder will succeed.—A CUMBRIAN STATESMAN.

The Oxford and District Gardeners' Mutual Improvement Association opened its session with a social evening, on January 25, a good number of members and friends being present. The evening was given up to singing.

Societies.

Royal Horticultural, Feb. 11th.

The Annual Meeting.

In the absence of the president (Sir Trevor Lawrence, Bart.) through illness, the chair was taken at the annual general business meeting by the treasurer, Mr. J. Gurney Fowler. There was a good attendance, but owing to the usual announcement not having been given from the orchestral stand, quite a number of the Fellows evidently missed the meeting. Besides the treasurer, the following members of Council were also present: Lord Balfour of Burleigh, Sir Albert K. Rolit, Sir John Llewelyn, Messrs. Harry J. Veitch, A. H. Pearson, H. B. May, William Marshall, and James Hudson, and Rev. W. Wilks. Owing to the death of his elder sister, Major Holford was absent, and a choice group of orchids which he was to have exhibited at the show had been withdrawn.

The report of the year's work having been circulated, it, with the statement of accounts as audited, was taken as read. [The main features of the report were published in our pages last week.] Mr. Fowler then briefly discussed several aspects of the report, remarking that the society now had a membership of over 10,000. At the last two meetings there had been forty-six and ninety-six Fellows elected, making a total of 142, which is over and above the 10,000. Then as to finances, they had a net increase of £657 over last year. Subscriptions were £953 better, and the dividends on investments were higher by £236; while the hall had brought in £2,051, an increase over 1906 of £826. The hall was a standing source of income, and besides making a profit, the society had its fortnightly meetings absolutely free of rent. A net profit or balance over expenses of £20 had been made on the Temple and Holland House shows, and though this was a small sum, they were content so long as it was on the right side.

They had to prepare for depreciation, and 7½ per cent. was set aside on behalf of Wisley, and a sum of £720 was deposited for the cost of re-roofing the hall at the date when it will be required. The adoption of the report and accounts was moved by Mr. Fowler, and seconded by Sir John Llewelyn, the latter referring with satisfaction to the establishment of the Research Station at Wisley.

Mr. H. J. Elwes, F.R.S., congratulated the Council on having a balance of between £7,000 and £8,000 on the year; but he thought the expenditure of only £16 11s. 8d. on books for the Lindley Library a paltry sum. He also thought that Mr. Hutchinson ought to have the recognised title of librarian. He spoke in high praise of Mr. Hutchinson's abilities and care. Mr. Elwes also suggested a Publication Committee, to advise upon the literary matter of the R.H.S. "Journal." The scientific matter also might be published apart from the merely business part. He thought the printed matter was not marching with the times; and the old quarto "Transactions" were, in his opinion, superior to those of the present. Then as to the Master's Memorial, he thought that Dr. Masters would vastly have preferred to have his memory perpetuated by connecting it in some way with the Lindley Library. He had little faith in the value of lectures, believing that people would rather read papers than listen to them, and would benefit more that way.

Rev. J. H. Pemberton suggested a monthly issue of the "Journal," but overlooked the enormous expense of postage. Rev. G. Engleheart thought that a few more attendants might be allowed, in order to assist the small amateur exhibitors when setting up or clearing away. He also thought that the medal awards were far too liberally bestowed, and there was a feeling abroad that they were "cheap." Mr. Arthur W. Sutton supported this view. Mr. R. W. Wallace opposed. He believed that the value of the awards was still maintained, and said that many exhibits were now passed over that formerly would have received a medal. There had been great improvement in the displays themselves. As to too lavish awards, the Floral Committee that day had passed nine groups with a mere formal "Vote of Thanks." He repudiated the suggestion of Mr. Engleheart that hardy plant subjects were at a discount against warm-house exhibits. His remarks met with applause.

Mr. W. Cuthbertson thought the Council should not arrange exhibition meetings the day following Bank Holiday, it was unfair to nursery employees.

Mr. Fowler replied to each of the speakers, assuring them of the consideration of the matters dealt with so far as that was necessary. The business then terminated.

Owing to this being the date of the annual general meeting there was a larger attendance than usual, particularly of country visitors. The hall, too, was well filled with exhibits, though there was but little call on the space of the annexes. Primulas filled considerable space; Messrs. Cannell, Carter, Sutton, and Veitch each having exhibits. Cyclamens and

Carnations were also prominent, and groups of flowering shrubs, hardy plants, and orchids filled others of the benches. The *pièce de résistance* was Messrs. Suttons' collection of Potatoes, which was awarded a gold medal. A group of Orange trees in pots from Messrs. Rivers received a silver Knightian medal.

Orchid Committee.

Present: Mr. Harry J. Veitch (in the chair); with Messrs. James O'Brien, F. J. Hanbury, Gurney Wilson, de B. Crawshaw, H. Little, W. Boxall, Albert A. McBean, John Cypher, Arthur Dye, F. Menteith Ogilvie, F. Sander, J. Charlesworth, Walter Cobb, Chas. H. Curtis, A. J. Foster, G. F. Moore, W. P. Bound, H. G. Alexander, W. H. White, H. A. Tracy, F. J. Thorne, H. Ballantine, W. Bolton, C. J. Lucas, R. Brooman White, and Norman C. Cookson.

Messrs. Cyphers, of Cheltenham, in their miscellaneous collection staged *Odontoglossum Vulsteke*, *Angraecum sesquipedale*, *Cattleya Trianae*, *Odontoglossum crispum*—several fine white-flowered varieties; and a goodly selection of *Cypripediums*, including two plants of the rare and choice *Venus in flower*. C's *Fascinator*, aureum *virginale*, *Thompsoni inversum*, and *Lathamianum*. *Cyp. Fairrieum* was also showy, together with *Lycaste Skinneri* and *Cymbidium Winnianum*. (Silver Flora medal.)

Messrs. Stanley and Co., Southgate, N., contributed *Cattleyas Harrisoniae* and *Trianae*, and two or three pretty *Cypripediums*—*villosum Stanleyi*, very handsome, and a hybrid between *Euryades* and *Beckmanni*, having a nice dorsal. (Silver Banksian medal.)

Messrs. Hugh Low and Co., Bush Hill Park, Enfield, staged a specimen plant of *Cattleya Percivaliana* bearing a heavy crop of flowers. *Dendrobium nobile virginale* was also included, with *Cypripedium Dantieri* ("albino var."), a very distinct subject; also *Leeanum magnificum*, aureum *virginale*, and *Fairrieum*. (Silver Banksian medal.)

From Messrs. Moore, Ltd., Rawdon, Leeds, came white *Odonto. crispum*, *Lycaste Skinneri*, *Ada aurantiaca*, *Brassocattleya Mossiae-Digbyana*, *Dendrochilum* species, and other subjects. (Silver Banksian medal.)

Messrs. Charlesworth and Co., Heaton, Bradford, filled a nice space, and included *Laelio-cattleya Sylvia* (L.-c. *Phoebe* x L.-c. *Acania*), a new and pretty flower of medium size, the petals and sepals pale yellow, the lip richer, with a purple foreground, the rim beautifully convoluted. This hybrid combines four parents—two on either side. L.-c. *luminosa* was also very fine, with rich amaranth lip and ruddy-golden petals and sepals. The fine *Cattleya*, *Empress Frederick*, was also staged. *Cattleya Octave Doin* was also prominent, and as good as heretofore; together with *Lycaste Balliae*, L.-c. *Myra*, very bright yellow, and *Odontoglossum Lambaeanum* Lyoth, the darkest variety yet flowered. (Silver Flora medal.)

Messrs. James Veitch and Sons, Ltd., Chelsea, S.W., mainly staged *Cypripediums*, all in the pink of health, and carrying particularly fine flowers. There were thirty-two seedlings, most of them unnamed. *Platyclinis glumaceum* was plentiful, and there were also *Laelio-cattleya Nyssa*, *Laelia harpophylla*, *Dendrobium Ophir* and *D. Ainsworthi*. (Silver Banksian medal.)

Two well-flowered plants of *Odontoglossum coronarium brevifolium* from Baron Sir Henry Schröder, Bart. (gardener, Mr. H. Ballantine), The Dell, Egham, won a silver Flora medal. The plants were in teak wood baskets, and bore five and six racemes respectively. The flowers are quite varnished-looking, thick petalled, rich brown with yellow lip.

Sir Jeremiah Colman, Bart. (gardener, Mr. W. P. Bound), Gatton Park, Reigate, had some pretty *Phaio-calanthes*, also *Spathoglottis Colmanae*, and a new hybrid *Diasco-cattleya*. (Silver Banksian medal.)

J. Bradshaw, Esq. (gardener, Mr. G. G. Whitelegg), Southgate, N., was strongly represented by white-flowered *Cattleyas*; also *Odontioda Bradshawiae*, like a bronzy-red *Odonto. crispum*; with *Cymbidium Hookerianum* and several other fine things. (Silver-gilt Flora medal.)

Fruit and Vegetable Committee.

Present: Mr. A. H. Pearson, W. Bates, Alex. Dean, H. Parr, A. R. Allan, Wm. Fyfe, Geo. Kelf, R. Lye, Edwin Beckett, P. D. Tuckett, James Gibson, James Vert, J. Jaques, J. Harrison, J. McIndoe, Chas. Foster, Geo. Wythes, Owen Thomas, C. G. A. Nix, H. Somers Rivers, and J. Willard.

According to previous announcements, Messrs. Sutton and Sons, the King's Seedsmen, Reading, exhibited what was undoubtedly the largest display of cultivated Potato tubers on dishes that has been seen at Vincent Square, and is very probably the largest, and, taken as a whole, the best exposition of the noble tuber ever put before the public. We weigh our words; and are fully cognisant of what they imply. But what splendid produce! Who, viewing these bright and smooth-skinned Potatoes, in many scores of varieties, together with the special exhibit of species and their seedlings in the

glass case toward the centre of the long table—who would deny that measure of acknowledgment that has been written? No person in the United Kingdom has studied the cultivated Potato and the tuber-bearing species of *Solanum* more closely than Mr. Arthur W. Sutton, to whose energy his firm's standing as introducers of good Potatoes is so largely due. Messrs. Sutton have a theory that *Solanum tuberosum* is not the parent species of the cultivated Potatoes, but that *S. etuberosum* is. By means of their crosses and seedlings from these twain it would certainly appear that *S. etuberosum* yields seedling tubers of more uniformity and greater size than ever *S. tuberosum* does. They have also disproved, we believe, M. Labergerie's statements about the greater mutability of Potatoes from single eyes, and about leaving the tubers of *S. Commersoni* (Daval), for more than one year in the ground. Sutton's Blue Giant and *Solanum Commersoni* Violet, as far as we can see, are identical, so that it may be taken for granted that M. Labergerie made a mistake in ascribing the origin of the latter to a "sport" from *S. Commersoni*. But to do this extensive and remarkable exhibit justice would require a separate article. We observed all the best kinds of farm and garden varieties, including those of Messrs. Sutton's raising, as *Superlative*, *Discovery*, *Abundance*, *May Queen*, *Harbinger*, *Ninety-fold*, *Ideal*, *Centenary*, *Ringleader*, *Windsor Castle*, *Satisfaction*, and others. The exhibit was backed by a screen of green muslin, with name of the firm in gilt letters, and with the Royal coat of arms. (Gold medal.)

Four varieties of Apples, namely, *Chelmsford Wonder*, *Sandringham*, *Newton Wonder*, and *Smart's Prince Arthur*, grown by Mr. W. Roupell, Harvey Lodge, Roupell Park, S.W., "within five miles of Charing Cross," received a bronze Banksian medal, and also a cultural commendation.

Messrs. Rivers and Son, Sawbridgeworth, filled the platform end with Orange bushes in large pots, others in smaller pots, and all of them fruitful. The tallest were 6ft or higher, and bushy. Among the varieties or kinds were the Imperial Lemon, Malta Oval, Dom Louise, White Lemon, Silver Orange, Citron of Paradise, Bittencourt, and Tangerine. (Silver Knightian medal.)

Floral Committee.

Present: Mr. W. Marshall (in the chair); with Messrs. Charles T. Drury, H. B. May, John Green, T. W. Turner, C. J. Salter, John Jennings, E. Bowles, R. W. Wallace, Walter T. Ware, W. Bain, Charles Dixon, Charles E. Pearson, Wm. Cuthbertson, Arthur Turner, Herbert J. Cuthbush, W. P. Thomson, E. H. Jenkins, Wm. J. James, Jas. Hudson, R. C. Notcutt, James Walker, George Gordon, C. R. Fielder, R. Hooper Pearson, J. F. McLeod, and G. Reuthe.

A collection of hardy ferns came from Messrs. H. B. May and Sons, Upper Edmonton, which included some capital specimens of *Polypodium Schneideranum*, *Polystichum angulare* in great variety; *Scolopendrium* were also much in evidence, the crested forms being especially good. Needless to add, the whole were well grown and in excellent condition. (Silver Flora medal.)

Messrs. Barr and Sons, Covent Garden, were represented by a display of hardy flowers and a few Narcissi. The chief varieties of the latter were *Princess Ida*, *Gold Cup*, *Maximus*, and *Golden Spur*. *Helleborus* were also good, while a collection of *Crocuses* and *Snowdrops* made a good display.

An interesting display of flowers came from the Cape, and were staged by Mr. P. A. Molten, M.P., Guildford. The collection included *Proteas*, *Ericas*, and other plants. The Misses Hopkins, Mere Gardens, Shepperton-on-Thames, arranged a small collection of alpine plants.

An exceedingly bright and attractive table of plants came from Messrs. Jas. Veitch and Sons, Ltd., Chelsea. *Azaleas* here were quite a feature; the well-known *Simon* *Mardner*, *Deutsche Perle*, *Vervaneana* and *Apollo* were all in good form. *Freesias* were quite rich, all the plants being in the pink of condition. Some well-flowered plants of the *Shaddock* (*Citrus Decumana*) attracted attention, while the blue spikes of *Coleus thrysoideus*, in company with *Azalea amona* *Hexe* and *Primula Kewensis*, made a pleasing combination. The same firm also sent a fine exhibit of *Primula sinensis*, which included *The Duchess*, *Crimson King*, *The Czar*, and *Snowflake*. Winter-flowering Carnations, also from Messrs. Jas. Veitch and Sons, made a fine feature. The flowers were large, of good colour, and well arranged, the most conspicuous being *Aristocrat*, *Winsor*, *Nelson Fisher*, *Britannia*, *Robert Craig*, and *Rose-pink Enchantress*. (Silver-gilt Flora medal.)

Messrs. Jas. Carter and Co., High Holborn, contributed a table of *Primulas*, which consisted of distinct colours; perhaps the most distinct were *King Edward*, *Coral*, and *Princess May*.

Mr. H. Chapman, Rye, sent seedling *Freesias*, which evoked much interest. The best was *F. Chapmani*, a good yellow form, shaded with orange.

Messrs. J. Peed and Son, West Norwood, sent a mixed collection of plants, which included *Primula obconica grandiflora* in a variety of colours; some *Lachenalias*, and a large variety of

Saxifragas and Sedums; while a small collection of Cacti added to the interest of the exhibit. Mr. G. Reuthe, Keston, Kent, exhibited a good collection of alpine and other hardy plants; and the St. George's Nursery Co., Harlington, put up a fine display of Cyclamens. The plants were all in 5in pots, and were splendidly grown, the white varieties being simply superb, while the salmon shades were equally good. (Bronze Flora medal.)

Mr. E. A. Hambro, Hayes Place, Hayes, Kent (gardener, Mr. J. Grandfield), had a nice exhibit of Cyclamens and Primula obconica. The Cyclamens were splendidly grown in 5in and 6in pots. (Silver Flora medal.)

Messrs. H. Low and Co., Bush Hill Park, displayed a fine collection of Carnations arranged in tall glass vases, the flowers were very bright for the season. The best were undoubtedly White Perfection, Mrs. Burnett, Aristocrat, Mikado, Oriflame, Victory, and Winsor. The same firm also exhibited some good pans of Low's Salmon King Cyclamen, with decorative Oranges in flower, and carrying ripe fruits, also some fine plants of *Dracena Victoria*. (Silver-gilt Flora medal.)

Mr. Seward, Hanwell, had a fine display of Cyclamens. The plants were in 5in pots carrying quite a wealth of bloom. The strain is undoubtedly a good one. (Silver-gilt Flora medal.)

From Mr. H. Burnett, St. Margaret's Vineries, Guernsey, came a small but excellent display of Carnations. The flowers were unusually large and of good colour. The best were Marmion, White Perfection, Mrs. H. Burnett, and Mikado. Messrs. W. Outbush and Sons, Highgate, arranged alpine plants and some shrubs in flower; also Carnations. (Silver Flora medal.)

Primulas from Messrs. H. Cannell and Sons, Swanley, made a goodly show. The plants were well grown and of excellent colour. A few of the most noticeable were Giant Red, Moonlight, Duchess, Queen Alexandra, Mrs. G. F. Raphael, and Giant Red. (Silver-gilt Banksian medal.)

Mr. L. R. Russell, Richmond, occupied a table with variegated shrubs and climbers, the Ivies being most conspicuous. (Bronze Flora medal.)

Messrs. T. S. Ware, Ltd., Feltham, presented a choice display of rock and alpine plants, which included a number of *Corydalis thalictrifolia* flowering in 5in pots; Saxifragas in variety, and some fine pots of *Heleborus orientalis*. (Bronze Flora medal.)

A table of Rhododendron flowers came from Mr. R. Gill, Tremough, Penryn, Cornwall, which were gathered from plants in the open air without any protection; the flowers were wonderfully developed. A collection of water colours illustrating the varieties and species also enhanced the display. (Silver Flora medal.)

The first effort with forced shrubs and plants came from Messrs. R. and G. Cuthbert, Southgate, and for the early period the plants were splendidly developed. The *Azalea mollis* were of first-rate colour; the most striking were Madame C. Legrelle D'hanis, lutea major, and Mrs. A. E. Eudtze. Magnolias were well flowered; while groups of *Prunus triloba*, P. Pissardi, and *Staphylea colchica* were most attractive. (Silver-gilt Banksian medal.)

A table of Primulas came from Mr. W. Palmer, Andover, Hants. The plants were all of the double type, well flowered, and of distinct colours. The brightest varieties were Queen Alexandra, blush white; Crimson King, Mrs. H. Palmer, blush pink; and Lady Doreen Long.

From Messrs. J. Waterer and Sons, Ltd., Bagshot, came an interesting display of choice conifers, which for colour could not be surpassed. A few of the best were *Pinus flexilis*, *Abies concolor*, A. Remonti, A. pungens glauca, and A. Engelmani. Some dwarf *Ericas* bedded in moss formed a nice front.

A silver-gilt Flora medal for Primulas was awarded to Messrs. Sutton and Sons.

From Mr. W. H. Page, Tangley Nurseries, Hampton, came a fine collection of Liliiums and Carnations. The Carnations were in pots and in vases, and contained good flowers. (Silver-gilt Flora medal.)

Certificates and Awards of Merit.

Cyclamen, Low's Salmon King (Hugh Low and Co.).—A rich salmon-carmine, of true Cyclamen form; flowers large, with broad petals; a gem and an acquisition. A.M.

Diacro-cattleya Colmans (Sir Jeremiah Colman, Bart.).—Parentage: *Diacrum bicornutum* and *Cattleya intermedia alba*. The growth of the bulbs and of the leaves is exactly intermediate in character, as strikes one at the first glance. The flower is white in all parts, the lip slightly tinged yellow. It is 3½in deep and 3in broad, the segments radiating, and each fully half an inch broad. A.M.

Lycaste Skinneri Orien (J. Bradshaw, Esq., Southgate).—A beautiful variety, having pale rosy petals and sepals, the lip rich ruby-purple, and yellow within. A.M.

Sophro-cattleya Antiochus rubra (Charlesworth and Co., Bradford).—Parentage: *Sophro-cattleya Cleopatra* × *Cattleya gigas*. It will be noticed that this has only a quarter of the *Sophonitis* in it. The

flower is of the size of an ordinary *Cattleya*, of graceful, open form, and bright rosy-purple colour, the somewhat recurving convoluted lip being magenta-purple, with gold base. It is an attractive flower. A.M.

The following subjects received certificates at the meeting of the R.H.S. on January 28th:—

Cypripedium F. Sander (F. Wellesley, Esq., Westfield, Woking).—A sprightly pretty flower, much like some others that have lately appeared. The oval, hooded dorsal is greenish, tipped and edged white, and thickly covered over the green with dark mahogany crimson. The pouch and petals are reddish brown, tipped with bronze. The grower is Mr. Hopkins. A.M.

Cypripedium Fairricanum, Cookson's variety, No. 2 (Norman C. Cookson, Esq., Oakwood, Wylam).—A medium-sized flower with deep purple dorsal and purple-tipped petals, the centre of the flower creamy, as also the pouch. A.M.

Cymbidium Gatouense (Sir Jeremiah Colman, Bart.).—Parentage: *Lowianum* and *Traceyanum*. A rich dark brownish-red flower, of good size. The segments are veined and suffused with reddish-brown over olive green, the lip big, creamy, marked and lined purple. Very handsome. A.M.

Nephrolepis exaltata, var. *Amerpohli* (H. B. May and Sons).—This is a sport from *Whitmani*. It is very dwarf; almost like a *Hymenophyllum* (Filmy fern), not being more than 6in high, with soft, feathery fronds, minute pea green pinnules; an exceedingly pretty addition. A.M.

Pear, Bliskling (Mr. Wm. Allan, Gunton Park).—This now had the Award of Merit of 1907 confirmed. It is a large and excellent dessert variety.

Commons and Footpaths Preservation.

Lord Eversley presided over the monthly meeting of the Commons and Footpaths Preservation Society held at 25, Victoria Street, on Friday afternoon. Amongst others present were Lord Farrer, Sir John Brunner, Bart., M.P., Sir T. Fowell Buxton, G.C.M.G., Sir William Vincent, Bart., Sir Walter Murton, C.B., Professor Westlake, K.C., Mr. H. Marnham, M.P., Mr. G. E. Briscoe Eyre, Mr. Percival Birkett (honorary solicitor), and Mr. Lawrence W. Chubb (secretary). It was reported by the chairman that a large number of Members of Parliament had balloted for the society's Public Rights-of-Way Bill, and that Mr. R. Winfrey, M.P., had secured the fifteenth position. The Bill was set down for second reading for May 29, and the society had received promises of support from leading representatives of all parties. The main object of the Bill was to enable the provisions of the Prescription Act to be used in connection with the proof of highways, and to simplify and cheapen litigation in footpath cases. It was decided to prepare a Bill to facilitate the regulation of rural commons, and Sir John Brunner consented to introduce the Bill on the society's behalf. It was pointed out that in many neighbourhoods commons formed the camping ground of vagrants who could not be satisfactorily dealt with without Bye-laws made under a regulation scheme, and it was felt by the society that the time had arrived when privileges of compulsory regulation, similar to those enjoyed by the Metropolis since 1866, with proper safeguards of the rights of the Lord of the Manor and commoners, should be extended to the whole of the country.

The solicitor reported that eleven railway and water Bills now before Parliament affected common lands and open spaces, the total areas proposed to be absorbed exceeding 1,614 acres. Twenty-one other Bills affected commons and rights-of-way. It was decided to press for the insertion in the Burnley Corporation, Monmouthshire County Council and Pontypridd Waterworks Bills, under which large areas of common lands have been scheduled, of clauses to provide for the public right of access to the commons. It was also decided to support the local opposition to the Fishguard and Rossclare Railways and Harbours Bill, which seeks to absorb the whole of Goodwick Moor; and to oppose, if necessary, the London and Windsor Motor Roads, Tramroad and Tramways Bill, which would involve serious injury to Ravenscourt Park, Stamford Brook, and Back Common, Chiswick, and other open spaces. The secretary reported that the society was dealing with 120 cases of encroachment on commons or obstruction of rights-of-way, and that since the last meeting several footpaths had been re-opened as a result of its efforts. The society was stated to be arbitrating at the request of landowners and local authorities in three cases, and it was decided to oppose a scheme for the enclosure of Coopers Hill Common, Glos., a beautiful open space, 136 acres in extent.

Metropolitan Public Gardens Association.

OPEN SPACES.—At the monthly meeting of the Metropolitan Public Gardens Association, held at 83, Lancaster Gate, W., Sir William Vincent, Bart., vice-chairman, presiding, the draft annual report was read, showing much useful work had been done during the past year, including the laying-out of grounds in the City, in Islington, and in Clapton, the organic-

ing of outside window garden competitions in twenty-one districts of the Metropolis, the prevention of buildings being erected on Hampstead Heath and Eltham Common, the planting and preservation of trees in various localities, grants of seats, and other successful enterprises, over forty in number. The financial statement was presented showing an income of £3,660, in which, however, were included one or two large donations that are not likely to be repeated, and an earnest appeal was made for new members and subscribers to take the places of many of the older supporters who had died during the year. It was agreed to respond to an invitation to send a representative to a conference on "Espaces libres," to be held in Paris on the 28th inst. by the Musée Social, under the presidency of M. Jules Siegfried.

Letters were read respecting a proposed addition to Maryon Park of a hill top on which were ancient British earthworks, and it was agreed to find out on what terms it could be acquired. Copies of a "Daylight Saving" Bill to be introduced next session were received, of which it was agreed to adjourn the consideration until Mr. Willett, the promoter of the scheme, could attend. The landscape gardener stated that arrangements had been made for delivering the 1,500 trees granted by the association for planting in East Ham thoroughfares, and it was agreed to grant a lesser number to the Urban District of Walthamstow for a similar purpose. Progress was reported as to the schemes for acquiring areas at Grove Hall, Bow; Barking Road, East Ham, and Gipsy Road, Norwood, showing that £800, £1,750, and £2,100 respectively were still outstanding to complete the purchase fund. It was stated that the work of pruning the trees in Kensington, and of clearing away the asphalt from the roots of the fine trees in Spitalfields School playground, by which they were being suffocated, was proceeding satisfactorily. A letter was read from the Charity Commissioners stating that they would hold a public enquiry on the 9th inst. re proposals of the Ironmongers Company to build on their almshouses and garden in the Kingsland Road, N., and it was agreed that the association should be represented in conjunction with other bodies opposing the sale.

Birmingham Gardeners'.

ACTION OF FROST ON PLANT LIFE.

At the Athletic Institute Mr. Walter E. Collinge, as president of the Birmingham and Midland Counties Gardeners' Association, delivered his address on "The Action of Frost on Plant Life." Mr. Collinge stated that we were now rapidly approaching the season of the year when fruit growers and others stood in great dread of the early spring frosts. Almost every year thousands of pounds' worth of fruit and vegetables were ruined owing to the lack of protective measures. As is well known, the atmosphere contains moisture; at a considerable elevation it becomes condensed and forms clouds; if condensation takes place actively, and the temperature is above freezing, rain is produced, or snow if the temperature is below freezing. When the moisture close to the earth is condensed at temperatures above freezing, dew is formed; if below freezing frost is deposited. We may, therefore, define frost as the moisture of the air close to the earth's surface condensed at freezing temperatures upon plants and other bodies. Wherever frost is deposited the plant or other body must possess a freezing temperature. In the case of plants the temperature is reduced by radiation and the evaporation of moisture.

Mr. Collinge next indicated the conditions most favourable to frost, and the conditions under which it was less likely to do serious damage to plant life. The action and effect of clouds was described at some length, and likened to a blanket over the stratum of lower air. The action of frost on plants is to cause an expulsion of moisture from the inter-cellular spaces in the plant tissues, which causes drooping of the leaves, as the moisture is not replaced because the root is chilled. Apart from the advantages to be derived from geographical situation, the grower must depend upon artificial appliances, and very many and varied these are. Screens formed of cloth, laths, or glass, covering the plants with straw, smudge fires, and many other devices have been suggested. After examining these different appliances, Mr. Collinge stated that, acting on his advice, an Evesham fruit grower had recently patented a special stove and fuel, which in his opinion was far superior to anything yet put forward. It had been tried in Worcestershire, and it was found that twenty-one stoves per acre were sufficient to fight 9deg of frost. One man was sufficient to ignite and look after such fires on twenty acres of orchard. The cost of fuel was about 15s. per acre, and the fires burnt about six hours. The inventor claims for these stoves that they not only warm the atmosphere, but that they also give off a good smoke, which acts as a screen, and so protects the fruit from the sun's rays. In the lecturer's opinion there remained little doubt that ere long British fruit growers would be as successful as those in the United States in protecting their crops and trees from the late spring frosts, which would mean much to the fruit-growing industry of this country.—("Birmingham Post.")

Reading Gardeners'.

PRACTICAL DEMONSTRATIONS IN FLORAL DECORATING.

One of the most interesting meetings held in connection with the above association was the one taken by Mr. T. J. Powell, of Park Place Gardens, Henley-on-Thames, who gave a practical demonstration on the artistic arrangement of flowers. The first object lesson placed before the members was the decorating of a dinner table. The table had been laid to seat twelve persons, complete with cutlery, glass, candelabras, and silver vases. The central display consisted of an arch, around the pillars of which was trailed Asparagus Sprengeri, intermingled with sprays of Gloire de Lorraine Begonia. Under the arch was a splendid plant of Salmon Queen Cyclamen. At intervals were placed smaller arches decorated with similar foliage and flowers. The whole presented a most charming effect in pink. By request, Mr. Powell followed with the making of a lady's spray and gentleman's button-hole with Violets, also a small hand bouquet with the same flower. When these had been finished the time had arrived for closing the meeting, and it was proposed, seconded, and carried unanimously, that the meeting should be adjourned. Therefore, the subject will be brought on again towards the latter part of this session, thus showing that practical demonstrations are exceedingly popular, and tend to make such societies a benefit to both old and young members of the gardening profession. Mr. H. Wilson, The Gardens, Lower Redlands, staged a magnificent collection of Apples, consisting of the following varieties:—King of the Pippins, Golden Noble, Annie Elizabeth, Blenheim Orange, Potts' Seedling, Warner's King, Bismarck, The Queen, &c. The association's certificate of cultural merit was awarded to the exhibit. A hearty vote of thanks was accorded to Mr. Powell for his lecture, to Mr. Phillips for use of glass and cutlery, and to Messrs. Bracher and Sydenham for candelabras, silver vases, &c.

Egham (Surrey) Gardeners'.

QUESTION NIGHT.

The meeting held on January 1 was pleasantly spent. Mr. J. Record presided, and the first question asked was if growing Chrysanthemums for large blooms was on the decline, and if the single and decorative varieties were increasing in popularity? It was the general opinion that large Chrysanthemums were not grown quite so much for exhibition at the present day, the chief reason given being the great expense of railway carriage where blooms with long stems and vases had to be carried. Other questions were, What were the best six dessert Apples for the light soil of the district, and the best stocks for same? Another with regard to large vegetables for exhibition or private consumption, proved that medium sized vegetables of good shape were most useful generally. There was only one exhibit of three Savoy by Mr. White, which was considered worthy of the prize.

TREE CARNATIONS.

On January 15, Mr. J. Record in the chair, Mr. West, of the Friary Gardens, Old Windsor, gave a paper on the above, which proved most interesting and instructive to a good muster of members. The lecturer gave different times and ways of propagating by cuttings and layers, and went into the minutest details with regard to compost from the cutting to the flowering stage, stopping, watering, &c. Mr. West advised baking the soil as a preventive of such pests as eelworms and wireworms, and spraying with weak soot water to keep away red spider, giving a word of caution against over-watering after fresh potting, also a select list of varieties. A good discussion followed, and Mr. West was accorded a hearty vote of thanks. There were six exhibits of Parsnips by cottagers, Mr. White being first and Mr. Searle second.—H. P.

Stirling (N.B.) Horticultural.

ANNUAL MEETING.

The first annual general meeting of this association was held on January 14 in McKillop's Temperance Hotel, Stirling, when the president, Mr. Geo. Petrie, presided over an attendance numbering nearly a hundred. The annual report was read by the secretary, which showed a steady advance all round. The monthly meetings had been well attended, the average attendance being sixty, which was quite satisfactory considering the wide area from which the members are drawn. The exhibits at the monthly meetings were numerous and of exceptional merit. "Hospital night" was handsomely responded to, the large contributions of flowers being dispersed among the various hospitals in town and district. Three excursions during the summer respectively to Blairlogie; Inglewood, Alloa; Keir, Dunblane; afforded much pleasurable instruction. The treasurer's report was of a satisfactory nature, showing a good balance in favour of the association. Both reports were unanimously adopted. Twenty new members were thereafter elected; while Provost Thomson, Stirling; Sir J. B. Smith, Clifford Park; A. McGregor, Esq., Beechwood, were nominated for membership at next meeting. The following were appointed office-bearers for this year:—Hon. president, Mr. P. Drum-

mond; president, Mr. Geo. Petrie; vice-presidents, Messrs. Macintosh, Chapman, and Burns; secretary, Mr. A. McLennan, Laurehill Lodge, Stirling; treasurer, Mr. Hugh Mitchell, 13, Murray Place, Stirling. After the business meeting the members were entertained to tea by the hon. president, the rest of the evening being spent in a social capacity.—G. P.

Cardiff Gardeners'.

MISCELLANEOUS GROUPING.

The fortnightly meeting of the above association was held at the Philharmonic Restaurant on the 21st ult. Mr. H. R. Farmer presided. Mr. J. Powell, the representative of the Newport Gardeners' Association, delivered a very interesting lecture, which was greatly appreciated by the members, on "Miscellaneous Grouping." Mr. J. Graham opened the debate, which produced a brisk discussion. The chairman, in bringing the meeting to a close, referred to the loss the society would sustain in the removal of Mr. J. Graham, who is leaving the neighbourhood. Mr. Graham has been associated with the society for a number of years, and at one time was chairman. A very high tribute was paid him; the sincerest wishes of the members were expressed for every success and prosperity in the future. For the best lady's spray of Violets, first, second, and third prizes were awarded to Messrs. Went, Malpass, and Wicker respectively.

QUESTIONS.

The fortnightly meeting of the above association was held at the Philharmonic Restaurant, on the 4th inst., Mr. H. R. Farmer presiding. The evening was devoted to "Questions." Some were: What are the reasons we do not get better results from the hardy fruit garden? Is there any remedy for suppressing the Cucumber spot? Summer and winter pruning of fruit trees. What is the cause of Foster's Seedling Grapes cracking? The annual dinner of this society took place in the same building on the 29th of January, when fifty of the members spent a most enjoyable evening. E. H. Battram, Esq., F.R.H.S., Park Newydd, took the chair.—R. T. W.

Ipswich (Suffolk) Gardeners'.

The annual meeting of the members of the Ipswich and District Gardeners' and Amateurs' Association was held at the Co-operative Hall, Ipswich, on Wednesday, January 22. About seventy members sat down to an excellent tea, after which the business meeting took place. Mr. R. C. Notcutt (the president) occupied the chair, being supported by Mr. C. H. Shipston, Mr. T. E. Mayhew, and others. The chairman, in moving the adoption of the eighth annual report and balance sheet, said that during the past year the association had had many enjoyable meetings, and he was pleased to say that the work was progressing satisfactorily. The two exhibition nights were the best attended throughout the year. He was sorry there was not a larger attendance of members at some of the meetings and excursions. The association had had very successful interchanges of lectures with the Chelmsford Gardeners' Association. They were also negotiating the same with the Norwich Society. Referring to the balance sheet, the chairman said that the expenditure had increased somewhat, but he was pleased to say that there was still a balance in hand.

Norfolk and Norwich Horticultural.

ANNUAL MEETING.

This association held its annual meeting on Saturday, the 18th ult., in the Council Chambers at the Guildhall. E. T. Boardman, Esq., was in the chair. The report announced that the past year was not altogether a financial success. The Chrysanthemum show was chiefly responsible for the deficit; and the reason for this was the non-attendance of the public on account of the unseasonable weather which unfortunately took place at the time of the show. The receipts were some £52 less than the previous year. The spring show was in every way a successful one. The exhibits were considerably above the number of previous years, and so also were the receipts. The Rose show, which was held in the beautiful policy of the chairman, came off with flying colours, the receipts being £1,110 19s. 2d. The society holds three shows in the year, and offers in prizes the handsome sum of £300. Notwithstanding the general backwardness of the year, the society had little to complain of with respect to the quality of exhibits, excepting perhaps some fruits and Roses, which did not come up to what was produced in former years. The society also expressed regret that a greater interest was not taken in this instructive work, and urged the desirableness of an increased membership, which at present attained only to 342. The account gave a deficit of £65. The report and balance sheet being adopted, the business of electing officer bearers and the amendment of the rules was proceeded with. The Rose show for this year was fixed for July 2, which, prospectively, will be held in the grounds of Russell Colman, Esq., Crown Point, Norwich.—D. C.

The Franco-British Exhibition.

On page 106, January 30, we published notes of a preliminary view of the grounds and buildings of the forthcoming Franco-British Exhibition at Shepherd's Bush, London, covering 144 acres, and which will be opened in May.

We now learn that the following dates have been fixed for the temporary horticultural shows to be held in the grounds during the period the exhibition is open:—

First show	...	June 2-3, 1908.
Second "	...	July 16-17, 1908.
Third "	...	Sept. 23-24, 1908.

A schedule of these shows will be published in due course. The committee for the horticulture and arboriculture section is composed of the following gentlemen:—

- The Right Hon. Lord Blyth of Blythwood (president)
 Lieut.-Col. D. Prain, F.L.S. (chairman), Royal Gardens, Kew
 Lieut.-Col. F. Bailey, R.E., 7, Drummond Place, Edinburgh
 F. J. Baker, Esq., A.R.C.S., Shipley Hills, Meopham, Gravesend
 Edward Beckett, Esq., Aldenham House Gardens, Elstree, Herts
 W. J. Bean, Esq., Royal Gardens, Kew
 W. A. Bilney, Esq., Fir Grange, Weybridge
 Professor Boulger, M.A., 11, Onslow Road, Richmond, S.W.
 George Bunyard, Esq., The Royal Nurseries, Maidstone
 F. J. Chittenden, Esq., Biological Laboratory, Chelmsford
 William Cuthbertson, Esq., Marks Tey, Essex
 Sir Thomas R. Dewar, Esq., J.P., 1, Paper Buildings, Temple
 J. R. Diggle, Esq., F.R.S., St. Michael's Grange, Tenterden, Kent
 H. J. Elwes, Esq., F.R.S., Collesbourne
 J. S. Gamble, Esq., C.I.E., Highfield, East Liss, Hants
 John Green Esq., Messrs. Hobbies, Ltd., East Dereham, Norfolk
 Dr. A. Henry, M.A., 13, Warkworth Street, Cambridge
 Professor Keeble, M.A., University College, Reading
 The Right Hon. the Earl of Kinnoull, Dupplin Castle, Perth
 Sir Trevor Lawrence, Bart., K.C.V.O., 37, Prince's Gate, S.W.
 Sir John D. Llewelyn, Bart., J.P., 39, Cornwall Gardens, S.W.
 Sir Herbert Maxwell, Bart., Monreith, Whaiphall, Wigton, N.B.
 John Mickie, Esq., M.V.O., Balmoral, N.B.
 H. B. May, Esq., Dyson's Lane, Upper Edmonton, N.
 G. Marshall, Esq., 6, Seymour Street, Portman Square, S.W.
 G. Massee, Esq., Royal Gardens, Kew.
 A. H. Pearson, Esq., The Hut, Lowdham, Notts
 Spencer Pickering, Esq., F.R.S., Harpenden
 Sir Patrick Playfair, C.I.E., 2, Ennismore Gardens, S.W.
 The Right Hon. Lord Redesdale, G.C.V.O., K.C.B., 29, Piccadilly
 Major Leslie Renton, M.P., Naseby Hall, Rugby
 T. A. H. Rivers, Esq., The Nurseries, Sawbridgeworth, Herts
 T. J. Salmon, Esq., Wye College, Ashburn, Kent
 Edward Sherwood, Esq., Messrs. Hurst and Son, Houndeditch
 Professor William Somerville, 121, Banbury Road, Oxford
 Arthur W. Sutton, Esq., Royal Seed Establishment, Reading
 H. R. Sutton, Esq., Messrs. Mackies, Ltd. Reading
 F. V. Theobald, Esq., Wye College, Kent
 J. H. Turner, Esq., A.G.B.C., Salisbury House, Finsbury Circus
 Rev. William Wilks, Secretary R.H. Society, Vincent Square
 F. Forestry Sub-committee.

J. A. ALEXANDER, Esq., F.R.G.S., &c., Secretary.
 50, Warwick Gardens, Kensington, W.

The following classes, devoted to forestry, are part of the general exhibition, apart from the temporary shows:—

CLASS 49: APPLIANCES AND PROCESSES USED IN ARBORICULTURE.—Special instruments for gathering, preparing, testing, and preserving seeds. Tools and appliances used in tree culture and in the forest industries, tree measuring instruments. Preserving timber by creosote and other substances; examples and processes. Prunings, good and bad, and their effects. Malformation, curious growths of branch and root. Damage by fungoid pests, insects, animals, storms, frost.

CLASS 50: PRODUCTS OF THE FOREST AND OF FOREST INDUSTRIES.—Collections of fruits, seeds, cones. Specimens of indigenous forest products, home-grown timber cut into boards and transverse sections, giving age and conditions of growth. Comparative exhibits of timber grown under various conditions. Woods for cabinet work, building, staves, cricket bats. Wooden gates and fencing (not painted or varnished). Basket work, wattling. Tan-bark, resinous substances.

CLASS 51: PHOTOGRAPHS, PICTURES, MODELS.—Photographs of specimen trees and groups of trees, new or rare trees suitable for cultivation in the British Isles; also showing operations in transplanting large trees, and various operations in forestry, such as thinning (before and after) coppicing, felling, removing timber, and sawing. Forest and nursery topography, maps, plans, books. Charts showing imports of timber. Of insects and fungi injurious to trees and their effects.

The general offices of the Franco-British Exhibition are at 56, Victoria Street, Westminster, London, S.W.

Market Gardening Notes.

CUCUMBERS.

When grown by the thousand, the compost is a good fibry loam, with a small proportion of either leaves or light decayed manure, well mixed together. Soil and pots are warmed, and the bench is in the house with the seedlings. Without absolutely being drenched, the seed plants should be well moistened before lifting. Pot deeply, but be careful of not squeezing the stem. Damp them over, unless it be very bright at potting, when they may be shaded with sheets of paper. Do not let them flag if it can be avoided. Place the pots close for a week, when the plants should then have got hold of the new soil; then give more room. The aim is stout sturdy plants, these having the right constitution. Cleanliness is absolutely necessary.

MUSHROOMS IN VINERY.

"Mushrooms are doing well; 30lb per week at 1s., 1s. 3d., which is good." Yes, and having inspected the bed in the first *Hamburgh* house, down the centre of the border, I can well bear testimony to the crop, and, what is of more importance, can safely say it is being secured without any detriment to the Vines. The breaking Vines also enjoy the escaping ammonia. In any form, except too hot rank steam, it is good. The bed residue is also useful for many purposes.

NARCISSUS VICTORIA.

Flowers of this *Narciss* were selling to-day, 6/2/08, in *Covent Garden*, by W. H. Page, of *Hampton*, at 12s. to 15s. per dozen bunches of twelve blooms. Apart from theirs being the first in the market, they were a fine sample, well grown and bunched, a credit to this good grower.

APPLE, BRAMLEY'S SEEDLING.

From *Surrey*, a very even sample, in 40lb boxes, selling at 9s. to 10s., equal to about a bushel. Much might be said on the matter, but the bald fact remains that good English Apples are worth growing.

MUSCAT OF ALEXANDRIA GRAPES.

On February 6 I found these practically cleared. At the same time I saw a few which realised 20s. per lb. Good quality in all long-keeping Grapes is well recognised, but none more so than this *Muscat*.

HYBRID TREE CARNATION MARMION.

At the *R.H.S.* exhibition, in the silver medal group exhibited by Mr. H. Burnett, *St. Margaret's Vineries*, *Guernsey*, there was a vase of very fine blooms of the above. In conversation, the raiser informed me that this variety fetches more money in the market than any other. A good doer, growing like a weed, everywhere it is admired. The growth is of the *Malmaison* type, stems stiff; a true winter bloomer. Flowers large and *Clove-scented*. It has received several awards.

TUBEROUS BEGONIAS FOR MARKET.

There are two side lines here, one for pot selling, the other for boxing for bedding purposes. The bulbs, usually imported, should be sampled in sizes; then lay them close together in a layer on an ash bed in an intermediate house, one in which *Tomato* plants are being raised will suit them well. A sprinkling of coconut fibre over the bulbs will encourage the crowns to break. But little beyond damping will be required for a fortnight. At the end of this time, the more forward bulbs can be potted up into pots, 48's and 60's. For boxing, the later and weaker bulbs are generally used. "*Geranium*" treatment will do these well, and beyond the first cast of the bulbs, they can be grown quite as readily. In a large batch of

these there is bound to be some specials, and these can be selected for propagating purposes another season, best done by taking the several growing breaks with a piece of the old bulbs and potting into 60's. The trade always takes a good few for the early window boxing, and if the early summer is fine and dry there is a large trade for bedding. A cold wet June reduces the market value.

LAYING-IN ROSES.

On the last day of January, calling at *Cannell's*, at *Swanley*, I remarked to the senior member of the firm the quantities of *Roses*, dwarfs and standards, being laid in. "Yes," he replied, "20,000; and this is the only safe way for the late planting." Lifted carefully, keeping the roots from drying up, they are very firmly laid into trenches. Standards are laid with their heads close to the ground. The aim is to keep the buds back. Labeled, these are drawn from as required up to the end of March.

VIOLAS.

Kent for early planting! A large breadth was out on the last week of January; no protection, but on a warm border. The fog and wet weather had done them no harm; but this planting out is some two months in advance of many districts. Well knowing how *Violas* do in the sunny districts, it was of interest to note the hardy manner in which this plant raising



A Prize Collection of Vegetables.

was being done; all for sale. They will be hardy clumps by the time they are sent out.—STEPHEN CASTLE.

Vegetables.

A Prize Collection.

For the sake of those younger men who aspire to become proficient in the staging of collections of vegetables, particularly such as must be staged to win prizes at *Shrewsbury Show*, we illustrate a typical first prize display. This was placed on view by Mr. Edwin Beckett, of *Aldenham House Gardens*, *Elstree*, at *Shrewsbury* last August, and won the chief prize in the class provided by Messrs. Edward Webb and Sons, of *Wordsley*, *Stourbridge*. Of course, the display also is a practical proof of the high quality of the strains of vegetable seeds that emanate from *Webbs*. The varieties included in the collection were *Stourbridge Marrow*, *Pea*, *Masterpiece Onion*, *Regina Tomato*, *Exhibition Runner Bean*, *Early Mammoth Cauliflower*, *Prizewinner Carrot*, *Champion Prize Leek*, *Chieftain Potato*, and *Pink Perfection Celery*, all of them Messrs. *Webbs'* selected varieties. Three things are necessary to obtain the highest success with vegetables at exhibitions, namely, (1) a good strain of seed; (2) careful, intensive cultivation; (3) skill in choosing samples and submitting them to the judges.

Young Gardeners' Domain.

* * The prize is awarded to Mr. H. Wood for his letter hereunder:—

Examples and Influences.

To start from the beginning, a young man has just commenced his duties in a garden. Influences are all around him, moulding his character without even his own knowledge. It is not often thought how great may be the consequences should the first two or three years of the young man's garden life be amidst bad surroundings. Sometimes, perhaps, we are apt to overlook the responsibility that is entailed by having the management of young men. It is a good thing to see conscientious men setting a good example of upright straightforwardness to their subordinates, an example the advantages of which, though not readily discernible at the time, yet in years to come will be seen bearing good fruit the world over. There are a good many young men at the present day who have to put up with a deal of bullying, hard work and hard words being more often their lot, where a few kind words, coupled with a piece of sound advice, would work wonders.

It is not only in working hours that a foreman's steadying influence is required, but more often in the bothy, where the men from the different departments meet and come into more personal contact with each other. All sorts and conditions of men are met with, and it is the foreman's duty to see that the younger ones are not led away by their elder, and sometimes callous, companions. It needs a strong will sometimes to counteract the influence of evil companions. But once such influences are discerned, strike out fearlessly, being sure that right is behind you, and in the end it will be seen that men will look up to you with honour and respect.

And now a word to the younger ones. I would ask them always to look up to their superiors. Go to them in any case where you think their more mature judgment would be of help, being always ready to learn, no matter how immaterial the thing may seem, for is it not the small details that make up the whole? Always keep in mind the old saying, "To ensure success is to command it."—H. Wood, Lydhurst, Haywards Heath, Sussex.

The Gardener's Choice

The young gardener is often in a dilemma when he comes to consider which branch of his profession he must follow to give the best results in future life. He may specialise in any one subject, such as orchids or fruit. He may enter private service, a general or market nursery, park, cemetery, botanical establishment, or some place of public amusement, such as the Crystal Palace. With such a multiplicity of openings the difficulty is to choose the correct one. Much depends on temperament. Let us briefly run through the list, carefully weighing the pros and cons of each individual branch.

To commence with private establishments. Some are really comfortable places in so far as comfort itself is concerned; good bothies, good wages, fair hours of employment, and a chance of a good berth later on. Alas! a great many more are but second-raters: indifferent sheds, miscalled bothies, which are badly lighted, badly furnished, and the sanitary arrangements primitive to the extreme; wages low and hours long; no encouragement, and dark prospects for the future. In addition the unfortunate gardener is expected to "humble himself lowly and reverently to all his betters." In a private place their name is legion; experience to be gained varies. As regards general nurseries, although doubtless the young gardener will pick up much useful knowledge, yet for permanent employment they are not very desirable. Wages low, and altogether unreasonable hours. Saturday afternoon off is the exception, and not the rule. Even if a man secures a responsible position, the wages as a rule are inadequate to the responsibility he holds.

Market nurseries are much the same. In many of these places the hours are from 6 a.m. until 6 p.m. all the year round. In winter he "works" with an inferior lamp or a candle during the hours of darkness. If a lamp, the value is kept back from his scanty earnings when he draws it out, and is returned to him in the spring, provided the lamp be handed back uninjured. In his present defenceless and disunited state the nursery employee is powerless to resist such tyrannical imposition.

Opinions vary as to the usefulness or otherwise of botanical gardens for the future welfare of the young gardener. In few are the wages anything like commensurate to the responsibilities undertaken. The good posts are few, and the applicants many. In some the aspirant is allowed to stay only a limited time, then he is turned off to get another berth as best he can. That is not the way to encourage the young idea. His clothing will cost him more than in other places, for he must at all times appear smart. In the hot, damp atmosphere of the houses trousers and boots last but a short period. Again, many of the plants cultivated in botanic establishments are never found in ordinary places.

We now come to the public parks and cemeteries. Here hang the horticultural plums of the future, fruit well worth striving for. Year by year the importance of parks in our great cities becomes more apparent. The number increases by leaps and bounds, and the money allotted for their upkeep is augmented annually. The work, although rough at times, is not too arduous; hours and wages are, on the whole, far more satisfactory to the employee than in any other branch of the profession. There is one fly in the park ointment. It is this: In many places the gardeners and labourers are not kept sufficiently distinctive. Thus, in the royal parks of London, a man with no experience will commence at the same wage as a fully qualified gardener, and often he is set to do the same work. As years go on these minor blots will be obliterated. In public work the worker possesses a greater feeling of permanency and independence than does the private worker. Really clever head gardeners are often thrown out of work owing to the death of their employer. An industrious, well conducted man is rarely dismissed from the public service. The conditions of employment in places like the Zoo and Crystal Palace are good, and much valuable experience may be gained there.—C. H.

Keeping a Diary.

On page 45 of the *Journal*, "Hybrid" contributes an article on keeping a diary. I have kept one now for a number of years, and have found it both interesting and useful. A diary is a great help where batches of plants have to be in flower at a certain time, or fruit and vegetables fit to pick at a particular date. In such cases the various operations connected with the culture of the particular subject have to be performed at a stated time to obtain the best results. If the crop is either too soon or too late there is going to be trouble. In such cases we can, by looking up the diary, see just when to put in our cuttings, or shut up our fruit houses, as the case may be. We can work with confidence, knowing that, bar accidents, our produce will be there when required.

The book I like best for the purpose is an ordinary exercise book with a stiff back, price about sixpence. One of these will last for two or three years, unless the notes and entries are very profuse. With a little practice one learns to be concise. My entries now are just as valuable as when I started to keep the diary, but they do not occupy half so much space. A space of one inch is left down one side, and short notes are made in this margin. For instance, if the entry is in connection with Vines, the single word "Vine" is put in the margin. At the end of the year a summary of the most important subjects is made up as follows:—Begonias: Started—Potted—In flower. Early-vinery closed—In flower—Thinned—Colouring—First bunch cut. Remarks ———. This summary does not occupy much space, and if notes have been made in the margin, it is a simple matter to look through the book to see when the work was done. If the matter is arranged under different heads, such as Fruit, Flowers, Vegetables, and everything put in alphabetical order, information which we may want in future years can be found at once. The making of this summary may seem to be an elaborate process when described on paper, but after all it is a simple affair, and a great saving of time when seeking information.—PLENUS.

Strawberries in Pots.

This is one of the most delicious hardy fruits we have. For those who want to prolong the season, pot culture is necessary. The Strawberry is propagated by layering the runners in the summer. About the end of June plunge a three-inch pot of soil into the ground and peg the runner into this. Select your runners from plants which were planted in the autumn, and which have had their flowering shoots pinched all summer. By the beginning of August the plants should be severed from the parent, and be potted into 6in size. A compost of good turfy loam and a little guano will suit them very well. See that the crocks are well placed, as this is of great importance; and place a few of the roughest pieces of turf over the crocks to keep the drainage clear. Firm potting is essential, and fill the pots to within three quarters, or one inch, of the rim. The remaining part is left for water when required. Great care must be taken in potting not to bruise the roots. Now place them in the open air, syringing morning and evening, and give plenty of water when required. Particular attention must be paid to watering in hot weather, for if the plants are allowed to flag, they are then spoilt. Remove all runners and weeds as they appear.

As the cold weather arrives the plants will require protection. A good plan is to plunge the pots up to the rim among ashes in some sheltered corner, or to place them in a cold frame. They may be left there until about the beginning of February, then remove into a warmer temperature. If placed on the shelf of a vinery, which is just started, ripe fruit may be had by the beginning of April. Syringe morning and evening until the flowers commence to open. After the fruits set, commence syringing again until the latter commence to ripen and show a reddish colour. When the pots begin to get filled with roots,

liquid manure, applied twice a week, and an occasional sprinkling of guano will be found very beneficial. One of the best varieties for pot culture is Royal Sovereign.—WM. SMITH, Douglas Castle, Lanarkshire.

Packing.

A great deal is written in the gardening papers about the care and cultivation of fruit and plants, but very little is seen about the best methods of packing them for railway travelling. Anyone in a private place who has plants to pack may gain some useful hints by taking notice of the way in which hampers of plants received from any first class nurseryman are packed. The more tender plants, especially those in flower, should be staked and wrapped in paper, taking care with flowering plants not to crush the blooms together. In the case of orchids, or plants with large flowers, tie each truss or flower up separately in tissue paper. This prevents them from getting bruised by rubbing. After the plants have been papered they should be placed in the "round," or hamper, putting the tallest in the middle. Plenty of hay or straw should be pushed between the pots to prevent them shaking about and getting broken in transit. Four stout sticks should be then pushed through the sides of the hamper near each corner, or when a "round" is used, at equal distances apart. Draw the tops of the sticks together and tie them tightly with stout string. With any but hardy plants a mat is necessary. This must be tied tightly round the sticks, and be sewn to the edge of the hamper, using a packing needle and strong string.

Fruit should be always carefully packed, especially the softer kinds, such as Peaches and Plums. Clean short grass, saved when the lawns are mown in the summer, and carefully dried in the sun, is, to my mind, far superior to wood wool for packing soft fruits, but the grass should be properly dried and small sweet. When Peaches are packed in wood-wool they need to be wrapped round with cotton wool. With the dried grass this is not needed, but the fruit may be put in tissue paper. Grapes and Melons may be treated the same way, although Grapes travel well when slung against the sides of a deep cross-handled basket, lined with wood-wool and tissue paper, the top of each bunch being securely tied to the edge of the basket. The mouth can be covered with stout brown paper. Strawberries are best packed with their own leaves. Each berry is wrapped in a leaflet and laid in a shallow box with more leaves on the top. Flowers travel best in strong wooden boxes, about 6in deep, lined with paper. Put the harder flowers and foliage at the bottom of the box, covering them with a sheet of paper, and finish with the choicer blooms, such as orchids, on the top.—H. B.

Treatment of Bedding "Geraniums."

No time should be lost in potting or boxing the bedding "Geraniums" that have been in the cutting boxes or pots since late summer or early autumn, as the case may be, so that they will get established ere the time arrives to bed them out into their summer quarters. Most gardeners prefer the former way, using pots commonly called large 60's, measuring approximately 3½in across the top. These are the most handy, and take up little space. The potting mixture for "Geraniums" may consist of half soil shaken from the old Chrysanthemum stools, with an ordinary amount of fresh loam, well decayed leaf soil, and river sand. The Chrysanthemums being usually highly fed in their growing season, no other manures are really necessary. The pots ought to be well washed previous to use with rather hot water, as they dry much quicker than when cold. Attach much care to this, as it tends to assist materially when the time comes to knock them out. It is very annoying when bedding-out to find the ball of the plant stick to the side of the pots. Instead of crocking the pots, save the time by placing some half decayed leaves at the bottom. These do equally as well, and are much less trouble. Proceed with the potting, which should be fairly firm, using the two fore-fingers and not the thumb so much, that the top is not left glossy with pressing. Remove to one of the warm houses and water in; if they are not put in a little heat they will soon turn yellow and look sickly. Where time and labour is keenly considered, I advise boxing them. Boxes vary from 1ft 6in to 2ft long, by 1ft broad, some 4in or 5in deep. Bore some holes in these, over which place some leaves for drainage. The soil for this purpose ought to be very much stiffer in texture, so that when taken out plenty of soil adheres to the roots and keeps them from flagging too much. This method saves much time when they have to be taken from one house to another, as removing small pot plants involves much time.

The variety Paul Crampel is fast superseding the old favourites, Henry Jacoby and John Gibbon. The main thing in favour of the first named is that the trusses of bloom do not turn black after rain. Flower of Spring still keeps a good position among silver-coloured leaves. Among tricolors, Mrs. Pollock maintains its reputation, although at all times the tricolors are never so robust as the others. One of the best for edging is Manglesi; the flowers of this variety are very tasteful for the lunch table.—C. C., Hatley Park, Sandy, Beds.



Fruit Culture Under Glass.

POT AND EARLY VINES.—Pot Vines will now be in flower, and the house will be best kept on the dry side for a short time till a good set has been secured, and with sudden climatic changes careful ventilation must be afforded. At the same time the house or pit should not be kept too dry, even during the flowering stage; but so much depends upon the weather and the amount of firing required. The temperature may now be raised a little at night, say 60deg to 65deg, and a rise of 5deg to 10deg by day, according to the weather. Every advantage should be taken of sun heat to maintain a liberal temperature. As soon as the bunches are thinned the Vines will be making new roots freely, and will shortly take food in the shape of clear liquid manure, given in a tepid state. The Vines in shallow borders, which I referred to previously, require more feeding than those with more rooting space. It should also be borne in mind that the earliest opportunity should be taken to thin the bunches. I have always found it advisable with early Vines to go several times over the bunches, and by an early start there is less demand upon the roots. Vines that have their roots restricted require closer stopping, and the removing of any useless shoots.

MUSCATS.—Now is a good time to start for Grapes in the early autumn, as it will be much better to give a full season's growth. This is more readily done if too much heat is not used at the start. The Vines break better and stronger. The borders should be examined, and if at all dry, give a good watering, and with ample roots I have used liquid manure to advantage. Failing this, use a weak solution of nitrate of soda. Of course, this now only applies to inside borders, and in a healthy condition; the food given now will start new root growth, and later on assist the setting.

HAMBURGHES AND EARLY HOUSES.—The early house will now require daily attention in disbudding and stopping, and the Vines should have the best placed growths kept; I mean those promising the best bunches. At the same time remove all growths but one from each spur, and the latter should not be too close, and, if possible, be left alternately on each side of the Vine. This done, it will allow Vines to expand or develop, and secure good foliage, and there will be greater freedom from insect pests; root action is increased, and the bunches have a better finish. The temperature should range about 55deg to 60deg in dull weather, with a liberal rise by sun heat, and avoid too much moisture unless the weather is warm and bright. To get a strong growth keep a little air on the top ventilators whenever possible.

LATE VINES AND MAKING NEW BORDERS.—The late houses have ere this been cleared of the fruit, and should now be cleansed and prepared as advised for earlier houses. Throw open the house and keep as cool as possible for the next few weeks. If mealy bug was present last season, more time must be given to the cleansing. Now is a good time to add to, or make, borders, as by doing the work now, before the roots are active, the Vines will not suffer. Care should be taken that the soil when put together is in a workable condition, and that the drainage is perfect.—G. W., Brentford.

The Flower Garden.

THE ROCKERY.—As many spring-flowering plants are pushing through the ground, this part of the gardener's charge will soon be attracting more attention. All dead leaves and weeds should be removed, and the place generally smartened up. Lightly stir the surface soil, and where necessary, a thin top-dressing will be beneficial. Avoid, however, raising the soil in the pockets too high, or during heavy rains the soil will wash over the sides on to the plants growing below. It may still be advisable to protect with small evergreen boughs a few of the more tender subjects showing flower. Keep a sharp look-out for mice, slugs, and snails now that the young shoots are pushing through the ground.

PRUNING TREES AND SHRUBS.—Many of those which flower on the current year's growth require pruning at this season of the year. A few of the most important are Hydrangea paniculata, which should have the previous year's shoots cut back to two eyes. Some of the Clematis require

pruning in February, notably the sections C. Jackmani and G. viticella; those which flower earlier in the year on last season's growth—C. montana, for instance—must not be pruned till after they have flowered. The present is a suitable time for pruning the autumn-flowering Ceanothuses and Spiraeas. Paulownia imperialis, when cultivated for its striking and enormous leaves, should also be pruned hard back. The young shoots of Climanthus fragrans will be better shortened back after flowering, as also can those of Jasminum nudiflorum.

BORDER AURICULAS.—These useful border plants are neglected in many gardens. They will thrive in ordinary garden soil, preferably of a rather heavy nature if well drained. They are readily raised from seeds, which should be sown in pans of light sandy soil in early spring. Place them in a cool house or frame. Auricula seeds, as a rule, germinate very irregularly. Care must, therefore, be taken not to disturb the soil in the seed pans more than is absolutely necessary when pricking off the seedlings from time to time, as they become large enough to handle. Plants in the border at present will benefit by a top-dressing of loam and well-decayed manure.

GENERAL REMINDERS.—Sow Verbena seeds in heat. Divide and pot up roots of Lobelia fulgens, and the newer hybrids kept in boxes in a frame during the winter. Look over Calceolarias, Pentstemons, &c., in the frames. A few of the tops may be taken from the strongest plants of which the stock is short. Look over the flower beds and make good any gaps in the spring bedding plants. When this has been done the plants still remaining in the reserve garden may be planted in groups on the herbaceous and shrubby borders. Myosotis and Wallflowers require the most making up with us. The Polyanthus look exceptionally well this spring, a contrast to their condition at this time last year. Sweep and roll lawns at intervals when the weather permits.—A. O., Kew, Surrey.

The Kitchen Garden.

PEA AND BEAN STICKS.—On wet days, when outside work is impossible, attention should be given to preparing sticks for the forthcoming crop of Peas and Beans. It is a great nuisance to have to set men to prepare a few bundles of sticks in a busy time before a row of Peas can be staked, and, in fact, this should never be the case. The wood, however, is often not forthcoming early enough to be seen to before things become lively outside. Every effort should be made to complete this when the weather is too bad for outside work.

ONIONS IN BOXES.—These should now be sown for providing the general crop. They should be placed in cool frames, where they will germinate slowly, but will be the more sturdy, and in every way the better for general use. Sow the seeds very thinly, and use fine rich soil. Of course, the frost will be kept out from the boxes, and care should be taken to give water only when it is absolutely necessary; but see that the soil does not become dry. A little Leek seed should also be sown, and treated as for Onions.

SPINACH.—The late frost has been very destructive to the winter Spinach, and except the Beet-rooted kind, very little will survive till spring; consequently a sowing should now be made in boxes or pots. It is a capital plan to sow a few seeds in a 5in pot and place this in a little heat. Prepare the desired number of pots, and should the seedlings come too thickly they are quickly thinned to the desired number. The plants can be hardened by placing them in a cold frame, and may be planted out some time towards the end of March, when they will feel the move to the outside very little indeed, and will soon provide a good supply of leaves.

PARSLEY.—If the Parsley advised to be sown some weeks ago is well through the soil in the boxes, it will soon be large enough to handle. The moment it is ready it should be pricked off into other boxes and be kept in a growing temperature, and given every attention in order to keep it growing as fast as possible. The late frost and damp weather have played havoc with the outside crop; and in consequence a heavy demand has been made on that in frames. Parsley in boxes will be all the more acceptable towards the end of April.

EARLY CUCUMBERS IN FRAMES.—A start may now be made, but the heating material must be prepared in a thorough manner, and should consist of two-thirds Oak or Beech leaves, and one of stable manure, which should be thoroughly mixed and turned twice a week until the rank heat has passed off. The bed should be considerably larger than the frame which is to be placed upon it, and should be well trodden as it is being made. It will also require lining to keep up a regular temperature. The soil should be put in the frame some days before the plants are to be planted, in order that it may become warmed. Cover the glass thoroughly every night to keep in the heat.—A. T., Cirencester.

THE BEE-KEEPER

Food Supply.

It is not a fact, as so many bee-keepers are prone to think, that bees are consuming their food, and with the departure of so many days so much food is gone. The weight of a colony will hardly vary from October to January, but a marked difference will be noticed about the middle of the following month. The bees will be going strong for the honey, as the brood raising commences in a small patch about Christmas, and expands gradually, and it is to this cause that the additional consumption of food has to be attributed. In addition to this, there are many days on which bees are active in February owing to the temperature rising, and this again causes an extra quantity of honey to be consumed. It is from the time that breeding commences that the danger of neglect lies, and every apiarist should be prepared for emergency feeding. All colonies should be examined cautiously, i.e., by raising the corner of the quilt and ascertaining if there are sealed stores, on some fine day. Should there be plenty, the outer combs may be placed on each side of the cluster. Failing this, candy must be supplied, and be placed over the food hole directly over the cluster, but if it can be avoided it is better to give nothing yet.

Where bees have gone into winter quarters with plenty of sealed stores they represent a mine of wealth. Nothing is so good as a solid comb of sealed food in starting a stock breeding in spring. The food is removed from the cells as required by the bees, and this stimulates the colony to greater activity, and the queen gradually replaces the food with eggs. Such combs, properly distributed, will work wonders in building up stocks. In case a colony is found out of food altogether, and too far gone for candy, 3lb or 4lb of warm syrup should be given rapidly, and followed up at intervals of about a week in a similar manner, on a warm spell of weather setting in. When feeding is commenced it does no harm to reduce the entrance to conserve the heat and keep out intruders, but as yet there will be little trouble with them, and the reduction of the width of the entrance will have a beneficial effect on the heat of the brood nest.

Misapprehension is often caused by bees going into winter quarters with unsealed stores in their combs, which have been stored late in the previous autumn. This makes it an impossibility for them to cluster properly in a compact body, and being divided into thin seams, they are apt to look as if they are starving to death for want of food; but such is not the case always, as the food will be found around them in the combs. The best method of assisting a stock in this plight is to insert an empty comb as near the cluster as possible without disturbing the bees, and they will take advantage of this to cluster on it, and so keep up the warmth so necessary to bee life.—E. E.

The Bee-keepers' Work.

The season of great activity among the bees has not yet arrived, but there is plenty to do if the season of 1908 is to prove a successful one. It is notorious that 1907 was a bad season in nearly all portions of England, but in some instances the bee-keepers had themselves to blame, for their unpreparedness caused it in some districts. I have in mind two bee-keepers whose hives are not separated by more than 200 yards, but whose results varied greatly. We will call them "A" and "B." The weather was beautifully fine for about three weeks, and "A" and "B's" stocks were both strong; in fact, in an ideal state for storing in supers. "A" had everything ready in the way of shallow frames and sections, whilst "B" had waited until they were needed, with the result that when the supers should have been on, he had to order his requisites from the dealer. This season of fine weather was practically the only one experienced in the district during the honey flow, so it was lost to "B." "A" had the pleasure of taking off 120lb of honey for extracting, and sixty sections from eight hives; whilst "B" is still grumbling, and says bees are not worth the trouble bestowed, for he took nothing, whilst "A" cleared a five-pound note. From this it is evident that there is work to be done, for shallow frames ought to be fitted up, and sections too. This can easily be done during the long evenings, for when the days are longer there will be much to be done in the garden, and no spare energy to prepare for the honey flow. Further, if we are desirous of extending our apiaries from swarms during the current year, now is the time to prepare. If hives are to be ordered, see to it at once, whilst the appliance dealers are slack; and when the hives arrive paint them, fit up frames, and wire in the foundation securely. Those who can do a little carpentry will make their own hives, and now is the most opportune time.—HYBLA.



TO CORRESPONDENTS

All Correspondence relating to editorial matters should be directed to "THE EDITOR," 12, MITRE COURT CHAMBERS, FLEET STREET, LONDON, E.C. Persons sending manuscript or photographs, when not specially requested by the editor, and making no demand for remuneration, are presumed to solicit publication without payment. In order that no misunderstanding may arise, and in order to secure the return of their contributions, contributors should state the fact that they expect remuneration, and in all cases, even when contributing voluntarily, correspondents should enclose a stamped envelope if they expect their enclosure to be returned.

UNITED HORTICULTURAL BENEFIT SOCIETY (W. F.).—The secretary's address is 9, Martindale Road, Balham, S.W.

APPLES SWEATING (B. G.).—It is not usual to go over the Apples and rub them with cloth after they are stored on the fruit-room shelves. It is necessary to look over them occasionally and to remove all decaying fruit to prevent it from tainting the sound ones.

SOWING NEMOPHILAS (Amateur).—If seed of the charming blue *Nemophila insignis* is sown now in shallow drills in the open air, the seed being covered half an inch deep with light soil, you will have a fine display in June if you prevent the snails eating the young plants. The plants should be thinned out as soon as they are large enough to be handled.

DRESSING FOR VINE BORDER (W. E., Weybridge).—The fertiliser to which you allude is good, but would be better with an addition of superphosphate; indeed, we advise a top-dressing of three parts superphosphate of lime (high grade), two parts nitrate of potash, and one part sulphate of lime, applying 4oz of the mixture per square yard at the time of starting the Vines, again when the berries are fairly set, and again when the stoning is completed. The border in all cases should be fairly moist when the top-dressing is given, and after applying, water it in moderately.

APPLE TWIGS WITH SWELLINGS (W. C.).—The portions of Apple twigs or growths bearing remains of some white cottony matter at the base of the excrescences, which appears to be that of the woolly aphid, or American blight (*Schizoneura lanigera*), but there are not any of the insects present, these having probably been destroyed by spraying the tree with the caustic alkali wash you mention. The swellings are due to the piercing of the tissues of the Apple tree by the suckers of the aphides. As there are no insects it would be useless to apply any insecticide, though possibly there may be some infection at the roots, but this is rare in this country, in which case watering with gas liquor diluted with about five times its volume of water is likely to effect a clearance, it being applied now, giving as much as in an ordinary watering. A sharp watch should be kept for the appearance of any cottony matter on the branches and twigs, and these patches may in summer be treated with a brush moistened with methylated spirit. The parts that are, or have been, affected by the woolly aphid often swell abnormally, especially in the early spring.

CONSTRUCTING PROPAGATING PIT (H. K. Q.).—For a propagating pit there is no need of light in front nor at the ends, in which case you will only require a glass roof, with a 3ft light in the centre at the highest part; you will have sufficient ventilation for propagating; but as you will desire to use the house for other purposes—Melons or Cucumbers in summer and plants in winter—we should have the whole of the upper part of the roof and 3ft down to the roof to open—sliding lights, or they may be hinged and raised by a lever. The middle wall ought to be 9in thick, also the back or shed wall, and the front wall until clear of the ground should be 9in, and may then be taken up 4½in, the height required. The pathway will need to be sunk about a foot to give head-room. For heating so small a house have a stove boiler in the shed, for which you will need a hole sunk to give the necessary level to the pipes. Two pipes will be required for bottom heat to the front border, and these we should surround with rubble, covering them about 3in deep with the same, and then have about 6in of plunging material for the pots. For top heat you will require four pipes, the pipes 2in diameter. Six pipes the length of the house and across the ends.

ZINC SASHBARS (A. A. M.).—There would not be any emanation from zinc sashbars injurious to plants; at least we have not observed any, and we have to do with both copper and zinc, but they were painted.

CALADIUM CULTURE (I. H.).—Pot them about three tubers in a pot, or five if small, allowing the same distance between the tubers as they are in diameter, and the same from them all around to the sides of the pots, potting so that the tubers will be covered about three-quarters of an inch deep. Give free drainage, and a compost of three parts turfy loam, one part leaf soil, half a part sandy peat, and half a part old cow dung or well-rotted manure, and one-sixth of silver sand, the whole well mixed, chopped up rather fine, but not sifted. Place in a house with a temperature of 65deg at night, and 70deg to 75deg by day, keeping moist, and only so until they are growing freely, then water also freely, increasing the supply with the growth. The pots being full of roots, shift into pots 2in larger in diameter, and when they are established in these, water twice a week with weak liquid manure. They, revelling in moisture during growth, should be very copiously watered and have a moist atmosphere. Slight shade from bright sun is necessary.

SANTOLINA AND ALTERNANTHERAS CULTURE (Old Subscriber).—Santolina is a hardy plant in well-drained soil, but in a wet one requires the protection of a frame or pit. It is propagated by cuttings, which root freely in summer in sandy soil in a close-shaded frame, or in spring in a frame in gentle heat. The young plants may be wintered in a warm situation out of doors, planting them about 2in apart; or if the soil be a heavy and wet one, winter in a frame in the cutting pans, hardening well off in spring, and putting out in light rich soil in April in a warm position, shading for a few days and keeping moist, removing to the beds at planting time. It is a remarkably neat edging plant for beds, and for lines in carpet bedding. The foliage is white or silver. Alternantheras are propagated by cuttings, which root freely in sandy loam in gentle heat, kept moist and shaded, and when well rooted potted off singly and grown on in heat; or they may be planted out in a pit about 2in apart, and grown on so as to have them strong by planting-out time, and well hardened off. In winter they require a temperature of 55deg, and to be kept moist. To strike freely they require a bottom heat of 70deg, and top heat corresponding. We do not think you will be able to obtain seed of either.

NAMES OF PLANTS.—Correspondents whose queries are unanswered in the present issue are respectfully requested to consult the following number. (H. G.).—No. 1, Asparagus; send when in flower; 2, Asparagus deflexus scandens.

Trade Catalogues Received.

John Smellie, Pansy Gardens, Busby, near Glasgow.—*Dahlias, &c.*
Sutton and Sons, Reading.—*Farm Seeds.*
Webb and Sons, Wordsley, Stourbridge.—*Farm Seeds.*



A New Venture.

We have before us the first part of Vol. I. of a little 3d. magazine styled "Our Land" (Cassell and Co.). It is a sign of the times. We are beset on all hands by what we may call "Back to the Land" literature. It looks as though the general public were becoming alive to the necessity of relieving the overcrowded towns, and repopulating the deserted villages. Whether they will be successful or not is an open question. We doubt if these books or papers are read by the right persons, i.e., those who would really be of value if they found their way back to the land.

There are plenty of town people ready to come and take up small holdings, and to inhabit fancy cottages, but this is from a pleasure point of view. They want somewhere for week-ends, and they do not consider the financial aspect of the scheme. They can afford to lose a little hard cash if they get its equivalent back in healthier frames; but the working man proper finds a healthy frame of little value if he has no means by which to nourish that frame. The first article is headed, "Falling into Line," and the first sentence we will quote

verbatim:—"We take our place to-day by the side of those agencies and societies which are endeavouring to solve the complex problem of the land, in the simple hope that we may be of service in making the difficulties known, and in encouraging a united effort to overcome them."

Now we suppose the problem of the land is,—what? To make it more fertile, or to make it more attractive to a larger class of the people? We should gladly encourage any project for either purpose. How are we first going to make it more fertile, more productive? Not by increasing the number of small holdings. A working man can and will do much by the sweat of his brow, but that is not all that is needed. He has no spare capital to invest in expensive tillages, and they are necessary for what we may call intensive cultivation. He can keep no great head of stock, and what he does keep is far from being the best of its kind. He can neither buy nor hire any of the manifold labour-saving appliances that go so far to make the rich man's farming cheap and effective. Added to all this, up to the present we may take it as a rule the little man pays more per acre for his holding than the great farmer, and he probably has far worse accommodation. For instance, we believe that manure is better kept dry: it is lighter in bulk, therefore easier of removal, beside being much more concentrated; but where is it found that on a holding of less than 200 acres or so there is a covered yard? We know of none, and it is of the utmost importance to the small man that he preserves what we may term the very essence of his dung.

Times and times again have we heard complaint of inefficient sheds or stables. There is no adequate comfort for a calf or two or litter of pigs. There is no space to spare, and no superfluity of bricks and shedding, and in many instances a bad and insufficient water supply. A fowl roost is rarely contemplated, and a fowl may be thankful if it comes to anchor on the top of the cart in the cool and airy shed which is reserved for "implements." We know and fully believe that co-operation is a marvellous help to overcome many difficulties, but we doubt if there will ever be co-operative buildings, or co-operative water supplies to these isolated small holdings. The thing is quite visionary and impossible. To collect produce, haul it to the nearest town or station is another thing, and a scheme of this sort has an immense future. It would be to a working man the saving of much time and much horse power, and he could always find a job on his land for himself, and more often than not for his horse.

There is a good article by W. M. Tod, M.A., on dairy farming, which really is, we hope, an industry not only good at present, but one with a great future before it. Mr. Tod truly observes that milk production is confined to no particular class of land or neighbourhood. Milk production depends on the successful management of selected cows. Under that head would come the careful supervision of the food department. The best and cheapest food is that which gives the best results, and we believe that this is a question which really tests the knowledge of every dairyman. Some solve it in some way, others again have their own special prescription. So much depends on what can be produced at home and what can be most economically purchased in the nearest market.

Whether we shall ever live to see butter and cheese factories worked on the co-operative principle throughout the country we cannot say. We should, by such means, assure uniformity in the manufactured article, but whether there would be a dividend that would satisfy the owners we are not sure. We have heard of a good many abortive attempts, but possibly the management has been of too expensive a character. Mr. Tod promises in a future number some further information. Dare we hope to ask that it may be the result of his own successful practice?

How is afforestation going to be dealt with in the future? Who finds the money for the land, the trees, and the labour? and who will pay the interest on that money till such time that there is a saleable timber crop? This is rather a wide subject, and although there are sanguine people who hope it may be made a State question, we doubt whether the time is ripe for that; and we also doubt if tree planting will provide suitable employment for the unemployed. We do not set an agricultural labourer to work if we are planting any trees in field or garden, and we doubt if the *Journal of Horticulture* would ever recommend that any planting should be undertaken other than by skilled hands. If a good beginning helps towards a good ending, surely it is of the utmost importance that a tree should get a good start by being planted in a scientific manner. As for preparing the ground for planting, we fancy it is harder work than most of the unemployed like. There is an inclination among them, we fear, for a "soft job."

On rural housing and sanitation a civil engineer has his say, and makes us blush to think how in many places sanitation is of a most rudimentary kind. There is no excuse for this in country districts, for kindly Mother Earth will receive all refuse, cover it up, and convert it into a useful asset. The water supply often does present great difficulties. If building is dear, manipulation of water is dearer and more uncertain. It is a thing that must, in a great measure, be left to private enter-

prise; it is not fair to add another burden to the already over-taxed ratepayer. We might suggest that we know cases where ample supplies of water are obtained by the windmill pumping apparatus. The initial cost is not overwhelming, and with sufficient "tankage" (if we may coin a word), there should never be a short supply.

We are glad to say that with regard to cottage holdings there is vast improvement to record; the only thing is that these better houses are worth more rent, and it is questionable whether a working man is justified in paying it. We could wish that some of the old habitations would spontaneously combust; but at any rate they cannot last for ever.

At the "tail-end" of a paper we cannot go into the intricacies of the new Tenure Bill; in fact, we had rather wait awhile ere we say anything definite about it. An Act that looks very well on paper may not prove to be such a success as was expected; but we shall see. It is not so long since Parish Councils came into being, and we were to go back to the Golden Age; but somehow or other things appear to be pretty much as they were.

There is a readable paper on "Poultry-keeping on Large Farms," but there is one paragraph that strikes us with awe and wonder, and we are inclined to ask with Bill Newbould, "visions about?" After some really good remarks as to the value of poultry for profit generally, the writer winds up thus:—"Adequate and thoughtful labour is needed for all this; but the results will handsomely repay the farmer who cares to do the work in a business-like and scientific spirit. One hundred and twenty pounds a month or thereabouts ought to be worth consideration in estimating the receipts upon even a large farm." We should think so, too. We think there must be a blunder somewhere, or is the farmer to do nothing else but breed and rear poultry? Perhaps in the next number of "Our Land" we shall find the solution. We anxiously await it.

Work on the Home Farm.

The past week has been entirely favourable to farming operations. There has been but a little fall of rain or snow, so that the fine sunny days have exercised a full influence in drying the land. We have had frosts in the early mornings, but they have been very few degrees below 32deg Fahrenheit, and have not prevented ploughing anywhere. We have been ploughing turnip land, and it turns up beautifully—rather rough, but dry, and it will be all right at drilling time.

We can also get on now with cross ploughing fallows. Some of them were ploughed late, but there has been a great deal of dry frost since they were ploughed, and as we have many times contended, it is the early bird which destroys the worm in the case of a late season such as 1907. A late ploughing just before Christmas was better this season than leaving the ploughing until now. Well, we find the late ploughed fallows are in fine condition for immediate dressing with drags and harrows. It is really surprising how much good a few days of frost can do so long as rain is absent. Our barometer is now almost as high as it can be, so we hope the dry cold weather will continue. The present conditions must be very favourable for getting corn drilled on strong land. We have a damp but not a wet evening, a frosty morning, and then a fine sunny day. Under such circumstances of weather the farmer of heavy land who does not get on with his spring sowing in February is giving "hostages to fortune." We were talking to a farmer yesterday who is ploughing his seed land with three horses to get it ready for potatoes. He intended to have the land cultivated by steam, but was disappointed in hiring the tackle. He is ploughing with diggers, each with two skim coulters in front. His horses are horses, not donkeys, so the work must have been effectually performed. All the same, there is no doubt that the present weather is highly favourable to farm work, and we must get on as quickly as we can in making up arrears. We fear there must be many fallows in a bad state, but if frosty nights and sunny days continue through February, a great deal of May and June cleaning will be saved.

Farm and Garden Leaflets.

The Board of Agriculture and Fisheries has issued three more of its useful leaflets directed against the enemies of the field, the forest, the garden, and the stock-yard, previous instalments of which have been greatly appreciated. One of the latest leaflets, reports "The Tribune," deals with the exasperating disease known as American Gooseberry mildew, which has rendered the cultivation of this popular fruit unprofitable whenever it has appeared, and in some cases impossible. The letterpress is accompanied by illustrations, armed with which no careful observer can fail to recognise the disease, and minute instructions are given for the treatment of suspected and infected bushes. The other two pamphlets deal with the "Frit Fly," which in this country is chiefly injurious to Oats, though Barley may also suffer; and with a Pine disease of a fungoid character known at Kew as the "Kicky."

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Journal of Horticulture.

THURSDAY, FEBRUARY 20, 1908.

Possibilities in Store.

At first sight one might not unreasonably conclude that in the high quality of our fruits, vegetables, and in many cases flowers, in the aggregate, perfection has been attained, and that the chief object of horticultural art is now to maintain the great results gained by breeding and selection. Recent memories of great shows may readily endorse that inference. Out of that vast array of the best, staged in the best manner, it would not be difficult to select samples which leave nothing to be desired.

Take the Grapes for instance. Presumably it would have been fairly easy to select a bunch, say of Muscat of Alexandria, which fully deserved the encomium bestowed on it, "a perfect bunch." In that, as in other things, notably the vegetable exhibits, in what was rightly deemed perfect has perfection been reached? As another said, "The best of everything," which, in spite of possible openings, if admitted as a fairly honest estimate, means finality, for there is no better than the best. Granting all that; but a little reflection will serve to show that in the infinity of Nature there are yet "Heights unmeasured, depths unsounded." There is no horticultural Alexander sighing for fresh fields to conquer who will not find them when earnestly pursuing the byways of his business. And surely, it is in these ever possible triumphs of mind over matter that lies the chief charm of energetic gardening. "Peace hath her victories no less renowned than war."

Each new year brings in its train various novelties displayed in the seed catalogues which seem inseparably associated with this "new gift of Time." Some few of the novelties, here and there one perhaps, are destined to come to the front rank and remain there. Others, meteor-like, burst on our gaze to be as quickly relegated to the obscurity from whence they sprang. Yet there is always something peculiarly fascinating

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to the keenly interested grower anent these so-called novelties, which may or may not reveal themselves as improvements on existing types. One can readily understand with what *célat* a Dwarf French Bean would have come on the catalogue-scanner if there had been nothing but the Climbing French Bean previously known to cultivation, but when the case is vice versa it is less easy to comprehend the benefit derived. That it is a distinct advance, so far as height is concerned, goes without saying, and, presumably, it is not without merit in other directions.

It is rather, however, to the openings which do undoubtedly exist than to that capricious fancy which commands us to fall down and worship some new vegetable diety that these thoughts trend. Which is the best Beetroot, for instance? Someone naturally, of course, harks back to the winning exhibit of a great show. That was good, the best, in fact; but as a matter of fact was it the best possible? The chef says not, and we agree with him. The ideal root has yet to come, and when it arrives it will take the form of the Intermediate Carrot, proportionately larger, of course, but practically devoid of tap root, and without a suspicion of coarse side roots, all of which are the *bête* (no pun) *noire* of our friend the chef. The Parsnip, and a few other similar things, would do with a little shaping up in this direction, but we have other by-ways, even broader, to travel on, and this one need not further detain. We have been promised the coreless Apple, had one sample, in fact, which has proved a fraud, and whether Nature will ever be persuaded, or gulled, into doing anything better in this direction it is hard to say, or whether we actually want the coreless Apple is, perhaps, an open question; but there are other wants yet unfilled.

Early last winter, when our last drills of French Beans had received their *coup de grâce* from Jack Frost, one plant stood out unscathed—fresh and green. There was no reason why it should do so, for there was no sheltering bush or other favouritism shown, whereby it had escaped. Simply constitutional, and the thought occurred at the time that the tender tropical vegetable was trying to inure itself to our climate. And we may ask, in all seriousness, why should it not, to more or less extent, become gradually acclimatised? Unfortunately there was no seed to be saved in view of propagating the characteristic trait, which it undoubtedly was.

It is one of the great theories of the botanist or naturalist, whichever term best suits those who live in close communion with Nature, that plants are ever struggling to suit themselves to their surroundings, and that in some instances they are surely, if slowly, accomplishing it by some slight amelioration or amenability, imperceptible it may be in one generation, or perhaps in a dozen generations, but eventually arriving at tangible results. The observant cultivator, truly, is not short of material for helping on this process of natural accommodation to abnormal conditions; nor should he fail to see other by-ways, more obscure perhaps, but capable of carrying him forward. Natural adaptability of various things to change their form under altered circumstances is, of course, very obvious. The common Birch, for instance, manages to survive Arctic severity and ungovernable blasts, in the shape of an almost prostrate scrubby bush. Ivy which clings, when it has anything to cling to, failing which it assumes the bush form; and in *Ficus repens* we have a most remarkable instance of similar metamorphosis. Our phase of adaptability is probably far more subtle, but, we believe, none the less real, nor is it confined to the lesser things of the great kingdom of silent life.

Here is another by-way entirely divergent from those in which the plant is being compelled by the great natural law of self-preservation to accommodate itself to uncongenial conditions it has been forced into occupying. Entirely divergent, we say, for on the one hand the vegetable is working entirely in its own interests, although results may be for our benefit. In another, but not less important by-way, the plant's self-interest is wholly eliminated, and we want it to change its modes of life and methods of perpetuation for our benefit. It is a harder road to travel on, because we have not the co-operation of the subject. This in relation to more continuous bearing, as exemplified, or, rather, by the want of it, in members of the leguminous tribe. Peas and Beans, French Beans particularly, give us spasmodic gluts of produce, which, of course, can be generally met by periodic sowings. Nevertheless, even by this common sense method, the planter's plans, owing to peculiarities of weather, "gang aft agley," and two, possibly three, sowings come in altogether, or sufficiently so as to leave undesirable gaps in the supplies. Now if these vegetables, Peas, Beans, or whatever it is, could be persuaded into the good habit of more perpetual bearing, what a gain it would be! Some, of course, may say "Impossible"; others who will not tolerate the word in their dictionary of gardening, may, perchance, watch for some trait of character trending in this direction, and by judicious selection and breeding eventually obtain what everybody wants.—K., Dublin.

It may be thought that appeals to the public for subscriptions to charitable objects are never ending; and it seems as though we never can escape them. A fortnight ago we dealt with the Gardeners' Royal Benevolent Institution. The Orphan Fund. Now we have a matter concerning the Royal Gardeners' Orphan Fund (30, Wellington Street, Strand), to bring forward. It is a very seasonable and reasonable suggestion from Mr. H. J. Clayton, for thirty-four years gardener at Grimston Park, Tadcaster, Yorks. The suggestion is for a shilling fund for the chairman's list at the "Coming-of-Age" Festival on May 14. Mr. Clayton's letter, which we commend to the earnest consideration of our readers and print hereunder, was sent to the chairman of the committee of the Fund, and was read at the annual general meeting. Mr. Brian Wynne, the secretary, will be glad to send collecting cards to those who make application to him.

"I have read with very considerable interest the notification recently made in the gardening papers with reference to the 'Coming-of-Age' Festival, which is to take place on May 14, under the presidency of the Duke of Bedford. The statement which doubtless interested many others besides myself, prompted me to look up some notes of mine which were published in 'The Gardeners' Chronicle' for February 12, 1887, about which period the gardening papers freely gave space in their columns for the discussion of the question as to how we horticulturists might most worthily commemorate the Jubilee of our late good Queen Victoria. My notes contained a suggestion that the establishment of a Fund for the benefit of the orphan children of gardeners and others associated with the horticultural industry would be the most useful memorial that could be instituted. I have no doubt that it was this suggestion, coupled with a somewhat similar one made at the same time—quite independently—by the late Mr. Charles Penny, then at Sandringham, and Mr. J. Udale, then gardener at Elford Hall, Tamworth, in the *Journal of Horticulture*, which ultimately led to the establishment of the Fund.

"It was extremely fortunate that the germ fell upon such good soil, which, being diligently tilled and tended, has brought forth results which none of those who helped to set the Fund upon its feet could have believed possible. Still, great as the success of the Fund has been, and so able its management, I think more might have been done to nourish and strengthen it by my brother horticulturists of all grades. The annual subscription of five shillings means only a trifle over a penny per week, and such a sum surely cannot be much of a burden to the many who have not hitherto helped in the good cause. To want of thought rather than to want of heart, must, I think, be attributed their lack of interest in our institution, the objects of which should appeal to all. In the letter to which I have referred, I remarked that while there may be some who are opposed on principle, I venture to think wrongly, to the granting of pensions to old or disabled horticulturists, there are surely none so stony-hearted as to grudge or refuse to help unfortunate children in need of food and guidance. I think so still.

"I trust I may not be considered presumptuous if I make the suggestion to your committee, and beg for it their most favourable consideration, that advantage should be taken of the twenty-first birthday celebration to organise a popular shilling collection among all classes of workers in horticulture, with a view to obtaining a handsome birthday present with which to head the noble chairman's list. Taking them in the bulk at, say, 10,000, am I too sanguine in thinking that as many shillings could be obtained if only there is the will to make the effort to collect them? Think what a grand gift it would be to the charity—and to be obtained at such a trifling individual cost to the contributors. The fact that the noble President, the Duke of Bedford, is to take the chair on May 14, and the knowledge so obvious to all that the Fund has been admirably managed in the past, and is now so firmly established on a sound financial basis, should be a strong incentive to effort.

"I do not venture to make any suggestion as to how such a special collection should be organised; I hope only that the committee may be disposed to try it, as I feel sure that if they will, and the gardening papers will give it their blessing and support, the secretary will know how to deal with the matter, and—I hope and trust—make it a success if at all possible."

"QUARTERLY JOURNAL OF FORESTRY."—No. 1 of the second volume (January, 1908), has been with us for a week or two. The contents include, among the original articles, The yield of Beechwoods, and taxation of woodland (two articles). "Excessive Fellings" and "The Present Condition of Irish Woods," comprise the Irish section, and the official papers delivered at the summer meeting of the Royal English Arboricultural Society are also given. This meeting included visits to the famous collections at Earl Bathursts, Colesborne, High Meadow Woods, Tortworth, and Ashton Court, Gloucestershire. Current topics and short notes occupy the remainder of the ninety pages, so that the "Journal" thoroughly maintains its high-class interest and value. It can be had through booksellers, price 2s.



Diacro-cattleya × Colmanæ.

"Sentinel" asks, in his "Notes at Westminster," whether *Dia-cattleya* or *Diacro-cattleya* is to be the name of this new bigeneric hybrid. As we see, it has been certificated as *Diacro-cattleya* × *Colmanæ*, the parentage being *Diacrium bicornutum* and *Cattleya intermedia nivea*. But Veitch's introduced a similar hybrid containing two genera several years ago as *Dia-lælia*. Some discussion on the nomenclature of hybrid orchids took place at the last meeting of the R.H.S. Scientific Committee, notes of which appear in our pages. We show a flower of this new orchid at reduced size. The only colouring is in the lip, which is slightly tinged yellow. The photograph was taken by Mr. W. P. Bound, gardener to Sir Jeremiah Colman, Bart., Gatton Park, Reigate, from whose collection it emanates. It received an award of merit at the R.H.S. meeting on February 11.

Lælia flava and its Hybrids.

This bright although small flowered *Lælia* has been employed by the hybridists with the idea of raising a yellow *Lælio-cattleya*, and their labours have been rewarded to a great extent. *L. flava* produces spikes from 12 in to 18 in high, bearing between six to ten canary yellow blooms, and it should be grown at the cool end of the Cattleya house with the pretty *L.*'s *monophylla*, *cinnabarina*, *harpophylla*, and *longipes*, all being kept on the dry side when at rest. *L.-c. Andromeda*, which flowers about January, is undoubtedly the finest of the progeny yet raised. It is the result of crossing *L. flava* with *C. aurea*, and is fairly intermediate in size, having long stems, yellow sepals and petals, with a lip similar to *aurea*, only on a smaller scale. To see this striking hybrid at its best it must be arranged in grouplets or batches, from eight to twelve plants, when even on a dull day it presents a cheerful appearance. A few other hybrids are *L. Icarus* (*flava* × *cinnabarina*), *L. flavina* (*pumila* × *flava*), *L.-c. Myra* (*flava* × *Trianae*), a useful plant; and *Sophro-lælia Marriotti*. The majority are now resting, but when the new growth is partly developed, and root action is evident, then any repotting may be done; but these hybrids require a few degrees more warmth to bring them to perfection than the species already referred to above.

Masdevallias.

The most suitable time to repot *Masdevallias* and *Odontoglossums* is September and October; but all of them were not ready, consequently potting must be done later, as circumstances and the state of the plants permit. February is the month when the repotting begins, and one of the first groups that need attention is the *Masdevallias* and other occupants of the cool house. Any that are pot-bound and have overgrown their receptacles can be given a shift into a pot two sizes larger, or if the plant has become weak in the centre it must be divided into several pieces, cutting away the dead roots and all useless back stems, and then arranging them so as to form a useful specimen. In such a case the same size pot will suffice; but after such an operation the utmost discretion with the water-can is needed to prevent any loss of foliage.

A few of the *Odontoglossums* may be in a proper condition for repotting. It will also be necessary, where *Odonto.*'s are grown in quantity, to look over the stock at intervals of three weeks or so, and move on as required, irrespective of season and old worn out rules.

Seedling Cypripediums.

The best time to sow *Cypripedium* seed is February and early in March; and the most successful method is to sprinkle the seed thinly over the surface of a recently-potted *Cypripedium*; but the plants selected ought to be well watered before sowing, and afterwards be damped with a fine-rosed can whenever approaching dryness. A temperature of 65deg F. should be maintained, and the surroundings be kept moist, when the seed (if fertile) will germinate in a month or six weeks. Seedlings that were pricked off last autumn can now be potted on either singly in small pots, or three or four in a larger size, partly filling them with drainage, and using a mixture of chopped peat and sphagnum in equal parts. Give the seedlings a light position, and a spray overhead twice each day if the weather is bright and clear; also see that they are kept quite free from thrips, or progress will be slow.

Aërides vandarum.

This handsome subject resembles a *Vanda* in appearance, but it has cylindrical foliage, and the flowers are almost pure white. It is usually grown on a raft, or teak-wood basket,

where it can be trained and pegged down in such a way to prevent root disturbance only at rare intervals; but a renewing of sphagnum and peat, after carefully picking out the old material, is advisable each spring to maintain the roots in a healthy state. The blooms appear in autumn and winter in profusion when the plants are vigorous. Another *Aërides* requiring cool treatment is *A. japonicum*.

The cool division will need damping down each day, and the temperature must not be allowed to fall below 50deg F.; while the atmosphere ought to be buoyant, which is conducive to luxuriant growth and flowers of fine substance.—T. ANSTISS.

Notes at Westminster.

There was a fine display of orchids at the last meeting of the R.H.S. (February 11), and a great number of admirers in the afternoon. Probably the most striking of all was the new *Dia-cattleya Colmanæ*, a bigeneric cross between *Diacrium* (*Epidendrum*) *bicornutum*, and *Cattleya intermedia nivea*. It is fairly intermediate in character, taking the form of *Diacrium* in producing its flower spike, which had three buds, and one expanded flower. The colour is pure white, and the bloom measured three inches in diameter. For some reason, perhaps an error, the name was spelt *Diacro-cattleya*, which is incorrect if we take as precedent the first hybrid where *Diacrium* was used, viz., *Dia-lælia Veitchi*, when *L. cinnabarina* figured as the other parent. This plant received a botanical certificate from the Scientific Committee in March, 1905, but the one mentioned above deservedly gained an A.M. on February 11. *Odontoglossum brevifolium* was shown in superb condition by Baron Schröder, two plants bearing nine spikes, the longest carrying nineteen well developed blossoms. They are a rich chestnut-brown, with a yellow lip, and the foliage is broad, while the pseudo-bulbs are produced at shorter intervals on the rhizomes than is the case with its near ally, *O. coronarium*.



Diacro-cattleya × *Colmanæ*.

(Natural size, $3\frac{1}{2}$ inches in depth and 3 inches broad.)

The specimens exhibited have been at the Dell for many years, and they illustrated the high standard of culture maintained in that famous collection. A batch of *Phaio-calanthe Colmani* (varying from pink to white with various intermediate shades) came from Gatton Park; and Mr. Bound seems to be the only one to show them in prime condition. A temperature of 65deg F. is provided, and a little top air given whenever possible; this is apparently very essential. Other good things included *Cattleya Empress Frederick*, the chaste *Vanda Watsoni*, a well flowered piece of *Odont. pulchellum*, two *Odontiodas*, *Bohnhoffiae* and *Bradshawiae*, a splendid variety of *Odont. Lambeauianum*, *Lælio-cattleya Sylvia* (*L.-c. Phoebe* × *L.-c. Ascania*), some magnificent varieties of *Cattleya Trianae*, and numerous *Cypripediums* of the *Euryades* type. There are several new members on the orchid committee, who, let us hope, will soon follow the example of their floral brethren, and reserve a table for subjects that receive awards.—SENTINEL.

Microscopic Gardening.*

(Continued from page 127).

Vittadini in 1852, and Brefeld and Klebs subsequently, invented and developed, and Kooch and others have improved, a method of microscopic gardening which has led to most astounding results in the direction of soil science, and I cannot resist giving you a slight summary of some of these valuable and suggestive results. The Greek naturalists thought that the food of plants was elaborated beforehand in the earth, as in a stomach, and it took centuries of work to establish the fact that what the ordinary plant takes up by its roots in the absorbed water is only mineral matters of the ash, constituting but a minute fraction of the food materials of the plant (absolutely essential, however), to be worked up in the leaves with the far larger quantities of gases there taken in and assimilated in the chlorophyll apparatus by means of energy obtained from the sun.

It was part of the price to be paid for rescuing the physiology of plant-nutrition from the grip of the old ideas of Aristotle, in the disastrous more modern form they had assumed in 1835-40 when the humus theory held sway, that soil came to be regarded as merely a mineral medium of value to the plant in proportion to its contents in certain chemical salts.

Soil, as we now know, is really an extremely complex medium. It is true the substances it affords to plants—I am speaking of ordinary green plants—are entirely the small quantities of mineral salts needed for the ash constituents, and forming only about 1 per cent. to 2 per cent. as a rule, or a little more, of the whole dry weight, the rest coming entirely from the air; but since these mere traces of mineral salts are to be found in practically every soil it is clear that their presence or absence is by no means the determining factor of the value of a soil. The structure, porosity, capacity for retaining heat and moisture and various gases, and a score of other physical properties, are now known to be far more important factors in most cases.

During the slow course of evolution of our knowledge of soil, as investigations multiplied and improved, and as it became more and more certain that a mere chemical analysis of a soil taught far less as to its value than had hitherto been assumed, it became more and more noticeable that soil is a complex of much more than so many bits of rock and chips of rotting leaves and wood: it teems with microscopic living beings—nay, it is, so to speak, alive with living organisms.

A thimbleful of garden soil contains so many millions of microscopic algae, fungi, bacteria, infusoria, and other living beings, that the brain reels in the attempt to figure them swimming in the films of water lining the interstices between the particles of sand, slate, granite, clay, wood, straw, dung, bones, insects' legs and scales, and other tiny bits of dead things, to realise that they are consuming oxygen and giving out carbonic acid and other excreta; that they are living, growing, and feeding, and reproducing, and in their turn dying, and that in the myriad turmoils of their existence they are inducing changes in the soil, so continuous and so varied that in spite of their minuteness in detail, the changes must be vast indeed in sum.

After the fact had once been realised that the soil swarms with living organisms, attempts were soon made to arrive at some ideas as to their numbers and distribution.

Shortly put, it was soon found that the greater numbers by far are just beneath the surface, at a depth of a few inches to less than a couple of feet, and that these numbers rapidly diminish as we descend, till few or none occur at 3ft to 6ft down. In other words, these soil-organisms predominate just where the principal absorbing roots of our ordinary plants are at work. The numbers differ in different soils: a sandy soil may have only about 1,000 per thimbleful, where a garden soil will contain 10,000,000 or more, and the soil of a street up to sixty or seventy millions: they are also more numerous in summer than in winter, and in moist warm climates than in dry cold ones, and so on.

Now the question at once suggests itself what are these tiny beings busy about; and how do their doings in the neighbourhood of the absorbing root-hairs affect the plants of our gardens, fields, and forests? For we cannot possibly suppose that they exert no action on these. Microscopic gardening alone can guide us to solutions to these questions, and it is by selecting out the single forms, cultivating them in our microscopic garden beds, watching their habits, and learning what they are about, that we have succeeded in answering some of the questions regarding a few of them. Some questions only, and regarding a few of these minute beings only—I use these expressions advisedly, for we are only at the beginning of the enquiry, now actively going on in several quiet laboratories.

The results already obtained are so startling and important, that one wonders that the whole world of agriculturists, gardeners, and foresters, does not at once turn its attention to

stimulating further research into these new fields of practical enquiry.

In the first place we find a series of these organisms whose whole life-functions are devoted to getting rid of the bits of stick, dead leaves, and roots, pieces of paper and rag and other forms of the substances known to chemists as cellulose and allied bodies, converting them gradually into gases such as carbonic acid and water, and so ridding the heavy-laden earth of a burden so great that a very simple calculation shows that if they accumulated unchecked there would soon be no room for man on this planet. For it is quite a mistake to suppose that ordinary plants can directly utilise these things.

It has recently been shown that mud contains organisms which, put under conditions as closely as possible resembling the natural ones, will dissolve paper—and you remember paper is only one form of cellulose or plant-fibre, and there can be no doubt that these forms are active in every manure heap, sewage farm, marsh, refuse heap, and in cultivated soil.

Another form has been separated and grown in microscopic gardens, the function of which is to convert urea, which is useless to the higher plants, into certain salts of ammonia which are or can easily be rendered very valuable to them, and without the co-operation of these organisms the urea put on to land in stable manure, sewage, and in other forms, would be of no use to cultivators.

A recent authority has calculated that, putting the number of human beings at fifteen hundred millions, each excreting twenty-five grams of urea daily, there would be 37,500 tons of urea per diem to be got rid of, or to accumulate. If we add to this the quantities accumulating from other animals, which must be far greater, it is easy to see that whether regarded as locked up nitrogen, or as merely accumulating material, the blocking up of the earth's surface, so far as man is concerned, would be rapid.

Another set of soil organisms are found to bring about the oxidation of ammonia salts to salts of nitrous and nitric acids, forms in which they are even more available to the roots of the higher plants. They thus supplement the action of those organisms which convert urea into ammonium salts, as well as those of a large class of forms which convert organic nitrogenous bodies such as horn, hair, and other animal remains, and the debris of plants into ammonia.

These nitrifying organisms are among the most interesting and important of all the soil-organisms, and the ingenious methods of microscopic gardening which have led to their isolation and culture have opened up entirely new vistas into unknown regions in plant physiology, as well as thrown brilliant light on hitherto obscure problems in practical agriculture and horticulture. Equally important are the discoveries recently to hand concerning a series of minute soil organisms, which, alone or in symbiosis with leguminous or other plants, fix the free nitrogen of the air, and of others which undo the work and set nitrogen free again, so that our picture of the cycle of nitrogen in Nature is now fairly complete in its outlines, a fact the significance of which only attains its proper proportions when we know how difficult that problem was in the past, and how far-reaching its consequences are.

(To be continued.)

Notices of Books.

THE GARDENING YEAR BOOK.

"The Gardening Year Book and Garden Oracle" for 1908 has again been published by Messrs. W. and H. Collingridge, of 148, Aldersgate Street, London, E.C. The price is 1s. net. This, of course, comes to us annually, and so is no stranger to our readers, since notices of its useful and varied contents have regularly been given. As hitherto, the Year Book contains a coloured plate, the subject being a bronzy-salmon Malmaison Carnation, and there are several half-tone illustrations. The recipes beginning on page 245 will possibly be the most generally serviceable portion of the book, and include hints on water-proofing boots, making Bordeaux mixture, grafting clay and grafting wax, winter-dressing for fruit trees, shadings for plant houses, and so on. "Some Destructive Insect Pests" forms a chapter of ten pages, with six illustrations of moths and caterpillars (magnified). Another very helpful section is that containing the addresses of secretaries of horticultural societies; this seems to be very complete. "The Year's Work in the Garden," and "Notes on Novelties" conclude a really excellent shillingworth.

FERNS AND HOW TO GROW THEM, by G. A. Woolson, illustrated. London: Wm. Heinemann; 2s. 6d.

The aim of this book is cultural. It is designed "simply as a practical work for the benefit of the amateur fern culturist." We have the statement on the authority of Mr. Drury that the fern cult is gaining ground, and of recent years there have been a few books published dealing wholly with ferns. Mr. Drury's own book, which is a scientific as well as practical exposition.

* By the late H. Marshall Ward, D.Sc., F.R.S., before the Royal Horticultural Society, 1897.

ought to be sought in conjunction with this one of Mr. Woolson's. The list of contents is not long, including chapters on the life of a fern, where hardy ferns can be grown, ferns in the mixed border, rockwork for ferns, fern rockeries indoors, culture in Wardian cases, aerial fern culture, together with selections for various purposes. The book is a very simply written guide, and if all of us only knew what beautiful hardy ferns there are, and how easily they can be grown, this elegant and interesting class of plant would be in much greater demand immediately. The illustrations are quite a feature of the book, portraying well-grown plants, and ought, of themselves, to stimulate those who hitherto have not been hardy fern-growers.

Hardy Clematises.

The various types and varieties of Clematises are not employed for covering walls, trellises, and arched nearly as much as their merits deserve. Too many persons think none but a southern aspect is suitable; but this is not so, for many varieties will flourish on other aspects. C. Jackmani, so well known for its freedom in flowering and its richness of colour, succeeds in a variety of sites, even at the foot of a north wall. The culture of the Clematis is not at all difficult, and when once established no trouble is experienced in securing a full annual crop of blossoms.

The plants are raised by grafting on to the roots of a common quick-growing variety, in pots; therefore are available for planting at any season of the year. Clematises will grow in almost any kind of garden soil, provided it is made tolerably rich by the addition of half-decayed farmyard manure, and there is free drainage for surplus water from the roots, which is an absolute necessity when dealing with soil of a heavy, cold, retentive nature. They also enjoy liberal supplies of water when growing freely, but anything approaching stagnation about their roots is fatal to success.

Where new soil has to be provided, as in the case of planting near new buildings, dig out a hole 2ft square, thoroughly breaking up the bottom, and adding 6in of drainage if the base is of a clayey nature. Good garden soil, turf, decayed leaves, peat, or roadside refuse are all useful ingredients to employ, with the free addition of half-rotted stable manure. The end of March is a good time to plant, turning the plants carefully out of the pots, and pressing the soil moderately firm; and if they are dry give a good watering and mulch the surface with 2in of decayed leaves or manure. As the shoots of Clematises are very brittle and easily snap off when disentangling them, they should never be allowed to become interwoven, but should be secured to their permanent position at once. Supply water freely to the roots during hot and dry weather, and occasionally give the soil a thorough soaking with liquid manure, which encourages a strong succulent growth, resulting in a full crop of large, fully-developed blossoms. By syringing the foliage with clear water in the evening after a hot day growth will be hastened.

In growing Clematises it is essential that the pruning of each variety should be thoroughly understood, as the different sections, or types of flower, require separate treatment. An easy way of instructing the beginner in this detail will be to place the varieties I recommend under their several headings, making a note of the method to be practised in each case. Varieties belonging to the popular Jackmani section require close yearly pruning, as the blossoms are produced on the current year's shoots. Jackmani, the original type, produces deep violet-purple blossoms from early July until quite the end of September. C. J. alba is a counterpart of the type in everything but colour. Others are Gipsy Queen, bright dark velvety purple; Mme. Edouard Andre, bright red, of a velvety hue, very free; King Edward VII., puce-violet with crimson bar; Victoria, deep reddish mauve; Rubella, velvety claret, free; Queen Alexandra, pale lavender-lilac, purple base. The following are of the lanuginosa section, flowering from June to October, requiring but moderate pruning:—Lanuginosa, the type, pale lavender; Alba Magna, pure white, with extra broad sepalled flowers; Beauty of Worcester, bluish-violet with prominent white stamens; both double and single flowers are produced on this variety. Enchantress, double white, centre flushed with rose; Henryi, creamy white, large flowers; Lady Caroline Neville, French white, mauve bars; Nelly Moser, light mauve, with a bright red bar; Robert Hanbury, bluish-lilac, flushed at the edge with red. The patens section open their flowers (from the old wood) in May and June, making an early display; Albert Victor, deep lavender, pale bars; Miss Bateman, white with chocolate anthers; Sir Garnet Wolseley, pale blue with a plum-red bar; and Mrs. Quilter, pure white. Clematis montana is the first of all to flower, which it does before the leaves are formed—a pure white, sweetly scented. C. flammula, small flowers, very free, pure white and delicately scented, comes in for autumn.—B. W.

NOTES & NOTICES

Appointment.

Mr. A. W. Blake, for many years foreman at Wokefield Park, Berks, has been engaged as head gardener to the Earl and Countess of Carnarvon at Highclere Castle, Berks, and entered on his charge on February 10.

Mr. Wm. Pope.

From the above announcement it will be seen that Mr. Pope, for a good many years head gardener at Highclere Castle, and famous as an exhibitor of vegetables, joins those who are on the retired list; at least, we presume he has retired. He left Highclere on Friday, the 7th inst., and has gone for the present to reside at Thatcham, near Newbury.

"Black Seab" of Potatoes.

A pamphlet dealing with this disease (*Chrysophlyctis endobiotica*) has been prepared by Mr. E. S. Salmon, F.L.S., South-Eastern Agricultural College, Wye, and is published by the college. It costs 4d. to non-residents of Kent and Surrey, or 2d. to those who live in either of these counties. This "new and dangerous disease was introduced into England from the Continent about 1895."

The National Chrysanthemum Society.

The market show dinner will be held on Monday, February 24, 1908, at Lyons' Popular Restaurant, Piccadilly, W., at 7 p.m. Mr. R. Ballantine will take the chair, and it is hoped that there will be a large gathering of Chrysanthemum enthusiasts to support him. Tickets, price 4s. each, may be obtained from any member of the market show committee, or from the secretary, Mr. Richard A. Witty, St. James's Villa, Swains Lane, Highgate, London, N.

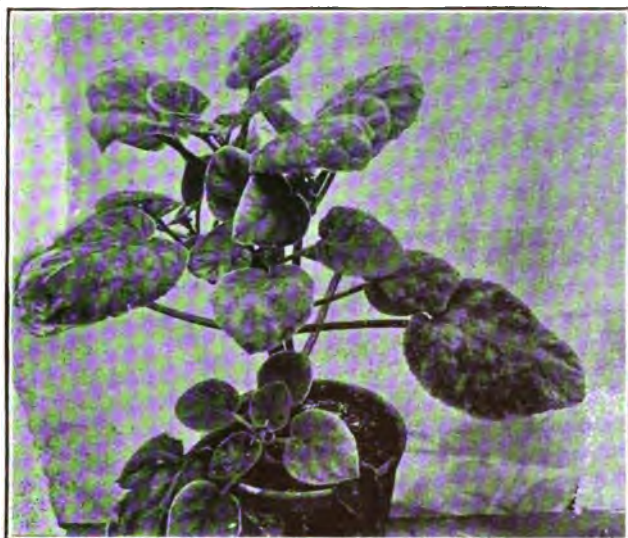
The Flora of India and Ceylon.

On Saturday, at the Grosvenor Museum, Chester, Mr. Joseph Thompson delivered a very interesting lecture on this subject to the members of the Chester Paxton Society. His remarks were founded on personal recollections of travels in India, and they were of a most entertaining and instructive character. Actual specimens of native plants, fruits, and birds were shown. The lecture was illustrated by a set of beautiful lantern slides. At the close of the lecture Mr. Thompson was accorded a hearty vote of thanks. Mr. John Weaver presided.

Royal Horticultural Society.

The next meeting and exhibition of the society will be held at Vincent Square, London, S.W., on March 3, 1 p.m. to 6 p.m. A lecture on "Bulbous Plants in New Zealand," by Mr. E. White, will be given.

At the annual general meeting of the society held on Tuesday, February 11, ninety-six new Fellows were elected, among them being the Marquis of Ailesbury, Earl Cairns, Countess Cairns, the Countess of Carnarvon, Lady A. Paget, Lady Palmer, Lady Schuster, Lady Rivers Wilson, and Sir A. W. Legard, making a total of one hundred and ninety-two elected since the beginning of the present year. * * On March 5 and 6 the society will hold an exhibition of Colonial-grown fruit and vegetables, both fresh and preserved. Fellows will be admitted at 1 p.m. on the 5th, and at 10 a.m. on the 6th. The exhibition will be open to the public on payment of 2s. 6d. from 2 p.m. to 6 p.m. on the 5th, and on payment of 1s. from 10 a.m. to 6 p.m. on the 6th. The band of the King's Colonials will perform each day. * * An examination in elementary horticulture for lads and young men under nineteen years of age will be held under the auspices of the Royal Horticultural Society on Wednesday, March 25, in as many different centres in Great Britain and Ireland as circumstances may demand. The general conduct of this examination will be on similar lines to that of the more general examination. Intending candidates should write at once for a copy of the syllabus to the secretary, Royal Horticultural Society, Vincent Square, London, S.W.



Gesnera exoniensis; leaves, rich crimson.

Weybridge (Surrey) Horticultural Society.

The Weybridge and District Horticultural Society's monthly meeting was held on February 11, the president, Mr. J. Lyle, presiding over about sixty members. Mr. Lingwood, of the Egham Society, read an excellent paper on the culture of Azaleas. Splendid exhibits were staged by the members.

"Snowdrop Saturday" at Kew.

Saturday last might have been called "Snowdrop Saturday" at Kew Gardens. There had been a steadily increasing number of visitors to the gardens during the week, but in the afternoon Londoners were there in crowds to see if they could discern the first signs of spring. They were not disappointed. Myriads of Snowdrops alone cover the lawns. One of the largest displays is under the trees within a few score yards of the main entrance, but in many parts of the grounds the delicate white blooms make a striking display. The missel-thrushes, which are never disturbed at Kew, have been singing for some weeks, and it is stated that blackbirds are also singing, a fact which indicates the mildness of the season.

Annual Excursion of Scottish Foresters.

Mr. Charles Buchanan, Penicuik, convener of the Excursion Committee of the Scottish Arboricultural Society, said at the annual meeting that the headquarters of the excursion this year would be Edinburgh, and the places which would probably be visited were Dalkeith, Newbattle, Arniston, and possibly Rosebery, Hopetoun House, and Dundas Castle on the west side; Hawthornden, Roslin Castle, and Penicuik would also probably be visited; while Whittingehame and Gosford were within easy reach. There would also be a day visit to the Edinburgh public parks, and another at the National Exhibition. It was agreed, on the motion of the chairman, to leave the matter in the hands of Mr. Buchanan and his committee. On the motion of Mr. Adam Spiers, Edinburgh, it was agreed to hold a forestry exhibition in connection with the Highland and Agricultural Society's Show at Aberdeen.

English and Italian Gardens.

At the rooms of the Leeds and Yorkshire Architectural Society on the 13th inst., Mr. T. H. Mawson read a paper on "English and Italian Garden Architecture." Mr. T. Butler Wilson presided. The lecturer stated that as exponents of the art and science of landscape gardening, French and Italian examples were distinctly superior to the English; but for mere lovable beauty, nothing could approach the English garden. The charm of an English garden was the refreshing carpet of green grass. In the Italian garden there was no such keynote, but the reverse. This was necessarily so, because after the fierce sun of June only a few extreme sun-delighting flowers, such as Geraniums or a few sub-tropical flowers, continued to bloom throughout the remaining hot months, and these flourished best where they could gain a welcome shadow from a friendly wall or hedge, and so an abundance of adornment

in the shape of walls, balustrades, fountains became a necessity, and supplied the interest that grass and flowers yielded in our home gardens. The lecture was profusely illustrated by lantern slides.

Stove and Greenhouse Plants.

Gesnera exoniensis.

When I visited the garden which our old friend, "K. Dublin," supervised for a number of years so ably, he showed me a beautiful crimson-purple leaved plant, the foliage like plush or Genoa velvet, which he said was *Gesnera exoniensis*. Hitherto I had not seen it; but since then, several years ago, this beautiful stove or warm-house subject has witnessed a kind of resurrection, and now most good gardens can again show us a plant or two. For it is not new. It was known to our fathers. Messrs. Lucombe, Pince and Co., of the Exeter Nurseries, introduced it in or about the year 1867. It was figured in the "Floral Magazine," plate 381, in 1868; and the firm also distributed a coloured plate at the same time. They raised it from *Gesnera fulgens*, crossed with *G. zebrina*. Its numerous scarlet flowers are very rich, and standing erect, they are remarkably striking, and appear in October. These and the remarkable foliage together light up a conservatory in a wonderful manner. Messrs. Jas. Veitch and Sons, Ltd., again brought this plant prominently into notice a year or two ago.—J.

Azalea mollis.

Perhaps some reader will tell us the difference, if any, between *Azalea mollis* and *A. sinensis*. In the trade they are looked upon as distinct, and crosses are made reputedly between *mollis* and *sinensis*. *Azalea* now, and rather oddly as it seems to me, is discontinued as a name at Kew, this forming only a section of the genus *Rhododendron*. For horticultural, and for botanical purposes also, one should have thought the two are perfectly distinct. The firm that most often shows this plant is Messrs. R. and G. Cuthbert, of Southgate, N. Their great groups at successive Temple Shows have done much to educate the buying class upon the merits of the varieties of *Azalea mollis*. Among the best varieties for forcing for spring are Anthony Koster, golden yellow; Baron Edmund de Rothschild, red, yellow spots; Comte de Gomer, bright rose; Isabella Van Houtte, nankeen, orange spots; Dr. Leon Vignes, white, shaded nankeen, which are singles; also Aida, pale rose, blotched nankeen; Byron, pure white; Murillo, rose-purple; Velasquez, creamy white, and Virgale, pale yellow, which are doubles.—H.



A floriferous *Azalea*.

British Ferns at Kew.

Some five and thirty years ago the writer, visiting Kew Gardens, vainly sought a specimen of the common Hart's-tongue, and for same years after that there was absolutely no representative collection of our native ferns worth mentioning, while their varietal forms, which constitute a peculiar and unique feature in the British flora, were entirely ignored. This was the more remarkable, as twenty years prior to that time the culture of these varieties, or at any rate, such as were then known, became a fashionable craze, which was, however, short lived, since the natural material, i.e., the meritorious wild finds, were but few, and to meet the demand a host of mongrel "curio" seedlings were intermingled with the élite, with the inevitable result that the popular taste died out.

A coterie of ardent fern hunters, however, continued their research among the wild and common ferns, which are so plentiful in most of the western counties, and so in course of time private collections became enriched by many new and beautiful forms, the number of which eventually was increased by selective culture through their spores. Col. A. M. Jones, of Clifton, was one of the foremost and most ardent collectors and raisers, and through him Mr. Carbmell, of Usk, although of advanced age, became also an enthusiast, and raised an immense number of varieties. Mr. E. J. Lowe was a third in this trio. The result was that on the death of Mr. Carbmell he bequeathed his collection to Kew, and although this was supplemented by Col. Jones and Mr. Lowe, the collection is known as the Carbmell collection.

To accommodate the ferns so acquired, amounting to several thousands and embracing probably several hundreds of good distinct forms, a special rockery was erected at Kew of an extremely picturesque and appropriate character, and in this and in some extensive beds adjoining and backing upon it, and also along the path near the alpine rockery, the ferns were installed with beautiful effects. In course of time a considerable number of the plants, especially the *Athyrea* (Lady-ferns), *Polystichums* (Shield-ferns), *Lastreas* (Male, Broad, Buckler, and others), became huge clumps, which it was necessary to part in order to enable them the better to display their varietal character, and a few years ago the whole collection was overhauled and judiciously divided into separate species instead of being, as previously, somewhat heterogeneously intermixed.

The ferns in the chief rockery, however, which consists of huge stratified layers of rock, arranged very naturally as a sloping outcrop, were not disturbed to any great extent, and in the front of this a very fine group of Hart's-tongues finds an appropriate place. In the chinks of the rocks *Spleenworts* of several species find congenial shelter, and groups of *Polypodium* vulgare varieties, *Blechnums*, and *Cystopteris* occupy the foreground. A very large number of the ferns are clearly labelled—in every case, indeed, where the variety is recognised as distinct, and has been specially named—this is always the case, but it invariably happens that in a large collection partly raised from spores, a good percentage of intermediates occur, and such are not labelled, as the names would be sure to clash with others of approximate, but yet distinct, forms.

Since the first installation of the fern rockery, the area occupied by the varieties has been greatly extended, and our illustration gives an idea of one of the more recent improvements. To the British fern lover it is a matter of great congratulation that Kew, and through it the British nation, is in possession of such a collection, which is, and must be, absolutely unique in the world. It is unique, for it must be borne in mind that all these wonderful variations, with hardly an exception, have either been found growing wild in Great Britain, or have been reared from such wild finds. Although in many parts of the world ferns are much more abundant than here, and more singular still, although all our native ferns grow in other temperate countries as freely as they do here, comparatively very few "sports" are of foreign origin; while on the other hand, in this country, the recognised distinct wild finds number at least two thousand, some of the species, such as the Hart's-tongue, Lady-fern, Male-fern, and Shield-ferns having yielded scores and even hundreds of diverse forms, tasselled, curled, feathered, dwarfed, congested, and in many cases with two or several of such characteristics combined in one plant, with charming effect. We thus see that in this magnificent collection we have something peculiarly British. In all large plant collections other than this, we are inevitably greatly indebted to foreign imports, the native element being comparatively small; but here, we do not think that among the thousands there are half a dozen varieties of foreign origin.

The Kew collection will, we anticipate, become of increasing



Shelving Rockwork and Hardy Fernery.

interest to the public in the near future, since there are unmistakeable indications that British ferns of the right kind, i.e., choice varieties, are coming once more to the fore after a long period of neglect. We have already suggested the reasons of their popular decadence in the last century, viz., paucity of really first-class material and indiscriminate distribution by the trade of worthless forms. The position now is entirely altered as regards the first point, since there is not only an abundance of beautiful forms to choose from, but a large number of these infinitely surpass the best of the old days in delicacy and beauty.

When we consider, too, that the ferns, being British, are naturally as hardy as grass, requiring no warmth in the winter, that they are all perennials, lasting practically for ever so long as growing conditions are afforded, it will be seen that they are peculiarly fitted for popular attention. Thousands of shady conservatories facing the north, and unfitted for flowers, would house a hundred or so beautiful varieties of British ferns, and thousands of gardens now occupied by monotonous bunches of the common ones, all alike, might have their interest multiplied a thousand fold by a similar introduction.—C. T. DRYER, V.M.H., F.L.S.

Hardy Plant Notes.

Aubrietia Hendersoni.

Now that there are so many new *Aubrietias*, or Purple Rock Cresses, the value of some of the older ones is becoming rather obscured by the novelty of the others. One of the older *Aubrietias* which should not be lost sight of is *A. Hendersoni*, really only a variety of *A. purpurea*, which, when it was introduced a good few years ago, was welcomed with joy as the best of its kind. It is, in truth, still a variety worth growing, with its large, deep purple flowers, which make excellent subjects for spring bedding or rockeries. As seedlings come partially true it is necessary to go through the plants which are raised from seeds, when they come into bloom, and to select the best coloured for retention and propagation. As a good packet of seeds can be bought for sixpence, and as even the popular penny will buy a small packet from those who sell such quantities, few need be without this good *Aubrietia*. The seeds can be sown in small drills in the open, or in boxes or pots under glass. April will do for the open, but the seeds can be sown as early as February under glass.—SOLWAY.

Primula Forbesi.

There is a delightful little greenhouse *Primula*, called *P. Forbesi*, which is also a capital window plant, and a general favourite with those who own it, although it is not so showy as many of the race. It has been called the "Baby Primrose," possibly because of the small size of its flowers, but it cannot be on account of its stature, as there are other *Primula* species which are of less vigorous growth. It is one of the numerous plants which we have received from Yunnan within the last twenty-five years, and it has become a favourite with many, because of its dainty beauty and its simplicity of culture. It

has small leaves, rather like those of *P. cortusoides*, and from these rise many slender stems, with whorls of lilac flowers with a yellow throat, and resembling those of *P. farinosa*. Its height is from 15in to 20in. It lasts for a long time in flower, and is so floriferous that it is liable to exhaust itself by its free blooming, so that it is advisable to raise it from seeds annually. Seedling plants are also more vigorous than those from division. Seeds are sown in spring or autumn in pots of open soil, barely covered with very fine earth, a sheet of glass, shaded with a piece of paper, placed over the pot, and the latter set in the greenhouse or frame until the seedlings germinate. As soon as they appear, expose gradually to light and air, but keep shaded from strong sunshine, and either prick them out into small pots singly, or in larger, a couple of inches apart, when they have made their first pair of true leaves. Watering must be carefully done, or the plants will rot off at the collars. In the after treatment of the plants, which consists of repotting them into 3in pots when large enough, coddling by excessive heat and want of air must be avoided; and there is little difficulty in the flowering of this charming little Primrose, if the soil is suitable. Turfy loam, a little leaf soil, and a little sand is an excellent compost. It is just on the verge of hardiness, and only those with warm gardens far south should venture to try Forbes' Primrose in the open, where it looks well on a rockery.—M.

The Alpine Poppy.

All of the fringed strain of alpine Poppies are of great beauty, and they are so easily raised from seeds that those who like small flowers of this favourite race should purchase a packet of mixed varieties and sow them in the open in May for blooming next season. If sown earlier they may bloom this season, but they are practically biennials, like the Iceland Poppy, *Papaver nudicaule*.

The Balceng Irises (*I. balkana* × *I. Ciengialti*).

There is practically no limit to the number of hybrid Irises which will in process of time be available to the gardener through the work of the enthusiastic raiser of flowers. They are already numerous, but the vista of opportunities seems to grow longer and longer as we think of the vast host of flowers as yet unused in the process of hybridising and crossing. Among the plants which have already afforded us beautiful varieties through their union, some of the most pleasing results have been given by hybridising the pretty *I. balkana*, one not much grown, with the charming *I. Ciengialti*, the former from the Balkans, and the latter from Lombardy and the Tyrol. Both are dwarf species, excellent for sunny places in the garden, either in the border or on the rockeries, and their progeny have proved acquisitions to many gardens of the present time.

As a rule they come in between the earlier and the later bearded Irises, and this renders them doubly valuable, as when *I. pumila* and its allies are over there is generally a gap ere the tall Flag Irises come into bloom. Then the Balceng Irises are appreciated by all. Of the five or so varieties of this origin with which I am acquainted, I have preferred for rock gardening the two named Miss C. M. Owen and Miss H. M. White. Both of these are very dwarf, their general stature being about 9in only. The first has pretty white flowers, beautifully flaked with blue; while the second has its blooms of a delicate sulphur yellow, flaked with purple, and ornamented with a bright orange-coloured beard. Both are excellent varieties, and remarkably low in price. The others are also quite moderate in price, and of the three I recommend Blue Beard, which grows about 1½ft high, and has good flowers, prettily flaked with pale blue on a white ground in the standards, and having sulphur falls pleasingly marked with purple. The others are rather singularly coloured, and will well stand close study of their colouring when in bloom. Harlequin has its falls of an olive yellow, all flaked with bronze, and its standards of a satin-white, shaded and flaked with a sea-green. Curiosity has the falls of a nice yellow, flaked with bronze, and having a good orange-yellow beard; the standards being primrose shot with green. Of course, none of these parti-coloured Irises can be well described, as there are shades and markings which defy verbal description, and which would tax the powers of the skilled colourist to reproduce by means of his brush.

One has found these Balceng Irises easy to cultivate, but it should be noted that, like all others of the family with a rootstock of their kinds, they should not have the rootstock buried when planting. It is better to plant it almost on the surface, and to keep it down with a stone or a peg until the roots take hold. I generally plant with about a quarter of an inch of soil from the base of the rootstock. One finds, however, that these Irises are all the better for an occasional top-dressing (if we may so call the addition of a little soil about, but not on, the rootstocks). They can stand a good deal of dry weather, but object to underground moisture, and they only flower freely in sunny positions.—S. ARNOTT.



Canker in Apples.

A reply to Mr. J. Easter is called for. Before planting my Apple trees the field was steam cultivated up and down and across, the second operation being deeper than the first. We aimed at 18in, but got about 16in. Then shallow and wide holes were dug. The Portland cement plan, with 300 trees to the acre, would be extremely costly; and, it pursued in the field in question, I imagine that the trees would have been dwarfed beyond recovery from drought in one of the extremely dry summers that followed the planting. I should prefer to drain very thickly. But, as before explained, it is only a few varieties that suffer at all badly from canker, and some are entirely free from it. The trees have had artificial manures, containing nitrogen, phosphoric acid, and potash more than once, and cow manure or London dung twice in seven years. Some of them had lime some years ago, and all had half a ton of ground chalk per acre last year—not soon enough. They have just been dressed with 6cwt of kainit and 6cwt of superphosphate per acre, and will have sulphate of ammonia later on. I believe that harm was done by digging, or rather forking, in a wet winter. Scab has been extremely prevalent since.

As Black Currants do not flourish in the soil, which is too light for them, and they have a great deal of "big bud," in spite of the removal and replacement of infested bushes year after year (they were quite free when planted, having come from a nursery where the pest has never existed), they are to be grubbed up after the next crop, and then the field will get twelve tons per acre of small chalk, and will be thoroughly cultivated between the rows.

"Chard-Fud-Mark" is not very instructive as to how he cured his Cox's of canker.

Now that I am writing, let me ask readers, including "H. D.," whether they have noticed a peculiarity of Lane's Prince Albert, which is shown here. It consists in the appearance of scars in places—I do not know what else to call them—on the branches, including comparatively young growths. They are small, scaly patches, which slightly resemble canker, but are not the result of that disease. If scraped, they are found to affect only the outer bark. If any reader has noticed this defect in Lane's, can he tell me what it is? It does not appear to affect the region of the shoots or the fruiting materially, if at all.

I am obliged to the Editor for reply to my query.—A GROWER.

Comments on Recent Topics.

POT WASHING.

Mr. Riding is very cocksure that pot washing is unnecessary. Mr. Thornton, of Drighlington, is just as much persuaded that pot washing is a much-needed work. I can only think that the inevitable clay, its nature, and the use of coal in the manufacture, account for some of the diverse opinions as to pots. It is a well-known fact that some maker's pots become green much sooner than do those of others, and certainly nothing so detracts from the pleasures of the smart conservatory as dirty pots. If Mr. Riding consulted the well-known horticultural sundriesmen, Messrs. Wood and Son, of Wood Green, he would probably find that their patent pot washing devices were the outcome of necessity, based on many years' experience. Pot washing by machinery is interesting to the garden lad, because by it he is raised to the level of a mechanic. I am not sure, however, that pot washing work is regarded by the garden lad with so much disfavour as Mr. Riding believes, for after all, it shows quick results.

THE LOGANBERRY.

Though very slow in gaining admission into the garden and market, there would seem to be evidence that the Loganberry is now popular. New fruits take on quietly with the public. One of your correspondents does well to point out that in their undue haste to acquire stock, some have resorted to seed raising, and by these means have distributed plants of poor character and productiveness. Purchasers would do well to ascertain from the seller what is the source of supply, and obtain a guarantee that the purchase is from layered stock, and that, too, from a productive strain. I remember reviewing Mr. Wythes' extraordinary plants, occupying very lofty walls in Syon House Gardens. I have not seen such vigorous plants anywhere else. Though, strictly speaking, a culinary fruit, there are palates which appreciate the Loganberry as dessert; but in my opinion it will never rank as a common dessert fruit. The rampant nature of its growth will bar its

general adoption in the small garden, because it is not everywhere that lofty walls or fences are available. By many it is regarded only as a companion to the Raspberry. Walls, however, may extend their fruiting period.—S.

Wanted, an Apple Tree.

In the *Journal* for November 21 last, page 499, there was a note upon twin Apples. I shall be much obliged if you will give me the name and address of the nursery where trees of "Bedfordshire Twin" Apple can be procured, to which allusion was made.—C. H. CHAPMAN, S. Croydon.

Pot Washing.

I am another who does not agree with Mr. Riding's remarks on the waste of time in pot washing. When a plant is established and in one of the houses, I have often heard the question asked, "What looks worse than a dirty pot, or a dirty floor?" I am sure Mr. Riding's method would mean a great deal more labour in the long run. I myself can wash a pot in as quick time as he could rub one out with straw or rag; at any rate, if it were put to the test there would be very little difference as regards time. Our friend has to wait for a downfall of rain to do the business; rather a poor look-out if one experienced several degrees of frost in the meantime! Take a pot used for propagating purposes, unless it is thoroughly clean before being used there would be as many roots clinging to the pot as on the rooted cuttings. Not only have I seen pots washed thoroughly, but also rubbed with sandstone if they still looked grimy. Also to ensure the "life" of a pot which was cracked (any over 6 in in diameter), we wired them; and in every well-kept establishment, I say, let the pots be washed to ensure cleanliness.—E. ROBINSON, Snelston Gardens, Ashbourne.

When reading the note on "Pot Washing" in the *Journal of Horticulture* (page 110) it occurred to me that some young men and boys employed in gardens would be glad of an opportunity to thank the writer for suggesting that the task of pot washing was absolutely unnecessary and a waste of time. Personally, however, I cannot agree with this suggestion, and I am glad that the men under whom it was my privilege to work as a lad were strict advocates for cleanliness in all departments, pot washing included. Call this old-fashioned or what you will, I am convinced that in private gardens at any rate the custom will die a hard death. Let it not be supposed for a moment that this work is done simply because it is an old custom (many old customs are fast dying out), but because it is found to be a material aid in the thorough cultivation of plants. Who amongst plant growers has not experienced some difficulty when turning a plant out of a pot which had not been washed before use? It is well known that the roots of many plants will adhere to the sides of the pots when these are used in a dirty condition; these roots are torn off when the plant is turned out for repotting or other purposes. Not only are these roots lost, but owing to the force necessary to dislodge the plant some of the roots concealed in the ball of soil are in many cases strained and broken. Is not this alone sufficient cause to insist upon the practice of pot washing? But there are other reasons. The exteriors of the pots when allowed to become dirty often provide an excellent hiding place for various insects, some of which it is by no means advisable to encourage amongst plants, to say nothing about the appearance, which would not be very creditable to the man in charge of the house. There are other points in this question, some of which have been dealt with by a previous writer, and I am afraid that too much space has already been taken up with this note; but this seems to me rather an important question, and should not be lightly dismissed. Many gardeners I know (including myself) will welcome any suggestions dealing with the economising of labour, but I feel certain that the general use of dirty pots for plant growing would be a decided step in the wrong direction.—C. RUSE, Munden Gardens, Watford.

Our nursery friend, Mr. J. B. Riding, seems to be going to some pains to explain to *Journal* readers his most novel method of weathering pots. But I am afraid he is treating the subject on rather a narrow basis. It is one thing to be in a nursery and talk of the time wasted on washing pots, but he would find the other side of the question were he situated in a private place where cleanliness was expected, no matter how much time were spent in acquiring the desired result. Although I would be the last to disbelieve Mr. Riding's statement that pots "stacked in the ordinary way, and placed outside would, in two or three weeks, be ready for use," yet I cannot see how pots with a goodly covering of green matter could possibly be cleansed by such a short weathering. I can imagine Mr. Riding being horrified when I tell him I myself have recollections of pot washing, and not only washing them, but even scraping with a piece of potsherd that which I was unable to dislodge with the brush. As regards Mr. Thornton having a "difficult contract" to prove whether a

plant would grow best in a washed or unwashed pot, that, to my mind, requires little proving. Mr. Riding has only to walk round some of the gardens that year by year are claiming the best awards in our great shows. I wonder whether he would find the prominent 'Mum growers potting their plants into dirty 3 in pots, or even vegetable growers sowing their Onions in unclean ones.

As regards the glazed pots I must admit my ignorance. But I am able to quote at least one case, and that by a strange coincidence, of Auriculas. In this case the gardener was an enthusiast as regards the culture of these subjects, and following the trend of events, tried some of the glazed pots. Suffice it to say, that year's batch was the worst he ever had, and resulted in the porous pots returning to favour. Mind, I do not lay the whole of the blame upon the pots, but I think Mr. Riding will admit it looks rather suspicious. In conclusion, while admitting that tens of thousand of plants are grown annually to a high state of perfection in unclean pots, yet I am afraid Mr. Riding will have a job to convince most gardeners that a clean pot is of no advantage.—H. W., Haywards Heath, Sussex.

The Gardener's Discount.

As a reader of the *Journal* for nearly thirty years, I send you the enclosed. I do not know if it would be wise to comment on it, but I feel very disgusted, as I have spent many pounds sterling with the firm, and never received one penny from them; so that this circular to me is quite uncalled for. I had the same from another firm a fortnight ago, from whom I had never received discount, although I had personally paid them good bills.—HEAD GARDENER.

[Evidently more than one firm is sending out a circular of the nature of the one sent by our correspondent. The circular is sent for the employer's signature, which is to be attached to the following:—"I have no objection to my gardener receiving an acknowledgment for the care bestowed by him on the plants and seeds supplied by —."]

The Gardeners' Benevolent Institution.

As one who takes a great interest in the above institution, I was gratified at the result of the recent election, when a large number of applicants were placed on the list of pensioners. Yes, sir, it is a large number to be placed on the funds in one single year; but, alas! what of the larger number who are compelled to stand out for another long year at least? and a considerable number of necessity will have to wait for two or three, or perhaps more, years. In one case one poor widow had applied five times, and she was still not elected. But through the great generosity of Mr. Monro, she will receive the value of one year's pension. Mr. Arthur W. Sutton has also taken care of another poor fellow, who is permanently incapacitated by disease at the age of forty-three years. I should have said that these two are included in the twenty-one mentioned as elected.

Let me now turn to a very serious matter, or, at least, I think it to be so. I was interested in one of the successful cases at the last election, and consequently I asked a large number of people for their help on my friend's behalf. Amongst the number were twelve head gardeners, and to my astonishment only three were subscribers to the institution. Little wonder there are so many poor old fellows turned away disappointed. Wake up, fellow men, and if you cannot afford to pay your guinea a year, approach your employers with a card, which you may obtain of the excellent secretary, Mr. Ingram, and I am sure you will not ask in vain. There is yet an abundance of generosity in the hearts of our good old English employers.—THOS. ARNOLD.

Outdoor Peach Trees.

I am glad there is still a chance of the Peach and Nectarine surviving the difficulties connected with their culture out of doors, even with the Sea Eagle, quoted on account of being among the latest to ripen. Probably Hale's Early is the best for the open, being robust, hardy, of good quality and colour, free setter, and not in the least subject to bud-dropping, as is sometimes the case indoors. I remember once transplanting a large Hale's Early to the open, which had overgrown its space in a greenhouse where it had been forced for years, removing it in October, to the consternation of all concerned. However, its usual ripe crop of fruit was ready early in August, as if nothing had happened; of course, somewhat smaller in size to that obtained from an established tree.

In reply to "Bristol," we use sulphide of potassium in simple solution, 4oz to the gallon of water, whenever necessary or desirable, usually in early spring, when the trees are affected; also after setting, when the crop is gathered, and particularly in October against the fungoid forms, such as *Exoascus deformans*, *Sporotheca pannosa*, and the other milder forms when present; and I may say I never saw it failing in

exterminating these or red spider under judicious conditions of usage. Other forms of blisters, appearing at the same time, and at first sight somewhat similar to above, may be found on closer examination different, and caused by *Aphis persicae*, *A. amygdali*, &c. These may be exterminated with petroleum emulsion, one and a half wine glassful to the gallon of water, commencing in good time, and by preference spraying on a cloudy warm day or evening, stirring well when using.

Whilst persevering against blisters, there are other considerations well known to gardeners, which ought to be borne in mind, such as site, soil, condition of wood and roots, &c., as these sometimes, under unfavourable conditions, have a tendency to increase difficulties. Remember that it is frequently the struggling weakling and imperfect specimens in both plants and animals that are most unfortunate in contracting the countless miseries abroad.—D. McP.

The Triumph of the British Apple.

The remarkable notes on "The Foreign Apple Trade," which appeared on page 125, should prove stimulating reading to the British grower. It is also a clear indication that "the bread cast upon the waters has been found after many days." Foreign Ribstons can be had in plenty at 3s. per bushel, while British cookers are realising 12s. per bushel. Britons are not such dolts as to pay the higher figure if the low priced foreign article approached within measurable distance of the excellence of the home grown product. In season and out of season for many years the *Journal of Horticulture* has proclaimed in no uncertain language the dietetic superiority of British Apples over all competitors, and it is gratifying to learn that the *Journal's* persistent efforts in this direction have borne fruit abundantly. Gradually the purchasing public have come to understand that from the standpoint of flavour and chemical action, the home product defies competition. Yet we have been told in the past that shopkeepers preferred to sell foreign Apples to home grown ones; more, that many of them did not care to trouble about dealing with the home growers on account of the difficulty of securing regular supplies of even quality.

It seems, however, that the consumers are now going to have their say, and if they refuse to purchase foreign Apples, even at low rates, the shopkeepers will be compelled to pay more attention to our native supplies. The words of the Covent Garden auctioneer, as reported in the article above referred to, are worthy of being printed in the boldest of type—"The future of the Apple trade in this country is completely in the hands of the English Apple producer." Take this quotation in conjunction with the following statement, "Our Paris firm has ordered 1,000 bushels of British Blenheim Orange for delivery during next December," and the triumph of the British Apple is surely complete. Gradually we have been throwing off the shackles of slipshod culture, overcoming the fearful caution that extensive planting would lead to over-production, and are now realising that our past efforts are but as fitful spurts compared with the great work which lies before us. Having convinced consumers of the superiority of the British Apple, we have now to make great efforts to supply their needs. There will, of course, be years of scarcity, in which years foreign supplies will be welcomed; but when our own crops are good, there is not the slightest reason why we should not grow all we require to maintain a supply from August till April.

Instead of planting 25,000 acres in ten years, we might, with advantage, plant an equal area of Apples alone in one year, and pay no heed to the pessimists who tell us the thing is being overdone. They have told us this for the last thirty years.

Let the planting go on then, with greatly increased vigour, always provided it is conducted from start to finish with judgment and skill. Let good land be chosen, on well selected sites; let the soil preparation before planting be of a thorough description; then plant bush trees on the Broad-leaved Paradise, except in the case of such prodigious croppers as Stirling Castle and Lane's Prince Albert, which succeed best on the Crab, unless they are planted as supernumeraries, to be uprooted after eight or nine years. Let the work of educating the young in all matters connected with fruit growing be pushed on with greater vigour than in the past; and it is gratifying to know that much has been done in this direction during recent years. Let the great aim be to produce clean, even samples, by thinning, spraying, and good culture generally, and let every grower test the use of smudge fires as an aid to the prevention of damage by spring frosts. Also let the grading, packing, and distribution of the fruit when grown receive the special attention it should receive, but too seldom has, in the past. Let us do all these things with the thoroughness we are capable of when we have once set our minds to the task. Then? Ah, then! the waste acres of Britain will "smile with the beauty of plenty," and by degrees we shall remove the stigma which has so long rested upon us, of importing in huge quantities from other lands the King of our native fruits, which climatic advantages enable us to grow better than the competitors from other lands, who have too long controlled our markets.—H.

Entomological Notes.

The Small Ermine Moths.

The lateness of the last season was probably accountable for the late appearance of the caterpillars of these moths. *Hyponomeuta* sp., for until June was well advanced their presence was not particularly noticeable, and even then their ravages were somewhat restricted, they only being found on Hawthorn in a few localities, and there practically clearing the leafage of Thorn or Quick hedges, and rendering them as bare and rusty-looking as in winter. This is the work of the species known as *Hyponomeuta padella*.

The moths appear about the end of June, and lay their eggs in roundish patches on the small twigs. The eggs may be found hatched by the beginning of October, but the caterpillars (which are thin little yellow creatures with black heads, and only about half a line long) remain sheltered during the winter. They do not come out till the leaves begin to unfold in spring.

In my walks abroad I also notice the presence of the small ermine (known as *H. euonymella*) caterpillars on the Japanese Spindle tree, *Eonymus japonicus*, and the green-leaved in preference to the variegated and more generally met with varieties grown in gardens. Although the common Spindle tree, *E. europæus*, is found in the hedgerows in the vicinity of the attack on the Japanese species, these are left severely alone; and even the Bird Cherry, *Cerasus Padus*, upon which this species of small ermine is said to generally feed, is not infested. Notable also is entire absence of small ermine caterpillars on Apple trees, though both *H. padella* or *H. variabilis*, and *H. euonymella* or *H. padi*, exist in near proximity. This goes to some extent to verify the entomological deduction that the small ermine frequenting Apple trees is a distinct species, *H. malinella*.

All the small ermine moths mentioned have a similar like history. From about the middle of July to the middle of August, for the most part, they are on the wing, and readily recognised by the general white or grey colour of the forewings, sparsely traversed on the upper surface by irregular rows of small black spots, and measuring 3/16 to 1/16 in from tip to tip of the wings. The hind wings are provided with a long fringe, and they, as well as the lower surface of the forewings, are brownish. The thorax is also supplied with similar marks. The eggs are deposited on branches in autumn, and covered with a gummy substance to protect them; the larvae emerge in the spring (according to some, they hatch in October and remain under the patch of gum during the winter, and do not come out till the leaves begin to unfold in spring), then they are said to feed between the surface of the leaves for a time (which I have not observed), and then eating the whole, spin a web in common around new leaves, on which they feed in safety. In severe attacks, the caterpillars so extend their operations on a Thorn hedge or other plant infested, that the foliage is stripped and left hung over by a kind of sheeting of the dirty ragged remains of their deserted webs. The caterpillars are a dirty grey or slate colour with a dark head, and, from the black wart-like tubercles from which hairs spring, appear almost black. The full-fed caterpillar spins for itself a tough greyish cocoon, about the size and shape of a large grain of oats, and in this protective covering it pupates. This change takes place for the most part in July, the chrysalid cocoons being situated within the respective common web, and a fortnight later the moth completes the life-history.

The colonies of caterpillars are at work in July, though most destructive prior to that, and spread over large areas in detachments and within reach, and they may be destroyed by crushing by hand, the use of gloves making the process less disagreeable. This also applies to the cocoons while the pupæ are in them. Of course, such measures should be put in force as soon as the webs are observed, and if too high to be treated in this way the webs may be swept off by a sweep-bag, canvas being used instead of net, mounted on a pole and previously soaked in paraffin oil, or a galvanised iron pail smeared inside with paraffin oil may be held beneath each web and the caterpillars swept into it with a pole, as when disturbed they lower themselves by a silken thread, and the paraffin soon ends them.

But in the cases of hedges the sweep-bag breaks up the colonies and ends vast numbers, and may be followed, or practised as a first treatment, by spraying with Paris green, 1lb (in paste form) to 100 gallons of water, 1lb of quicklime being slaked and formed into a thin cream with water, and added to the Paris green mixture through a fine mesh sieve. This must be kept well stirred, and applied by a knapsack sprayer or such other apparatus as will keep the liquid agitated whilst applying to the infested plants. The Paris green mixture can be used where poultry and stock are kept, as the quantity applied, or should be, to the bushes or trees is so small that it has no effect upon animals. It is also efficacious against the so-called tent caterpillars, which embrace those of the lackey

moth, *Clisio-campa* or *Bombyx neustria*, and the *Lipariæ*, notably the brown-tail moth, *Liparis* or *Porthesia chrysorrhæa*, also the gipsy moth, *Liparis dispar*, and the vapourer moth, *Orgyia antiqua*.

For these gentry (some of the caterpillars are very gay) arsenate of lead is advised as less likely to injure foliage than Paris green, 1oz of soda arsenate and 3½oz of lead acetate being mixed with water, and a little honey to impart a pasy consistency, and this paste dissolved in twelve and a half gallons of water, adding 1lb of paraffin emulsion, and well mixed is applied, like Paris green mixture, by a proper spraying machine or syringe with spray nozzle, so that a dense mist is thrown on the bushes or trees. This answers for all the species before

Agapetes macrantha.

This semi-tropical hard-wooded plant is another of those subjects of incomparable beauty, but which are almost entirely neglected. It was introduced so far back as 1851 by Messrs. James Veitch and Sons, Limited. Plants of it were staged by them in January, 1901, at a meeting of the Royal Horticultural Society in London. Our present representation is from a photograph kindly contributed by Mr. William Gardiner, of Harborne, Birmingham. The flowers are of a waxy consistency, deeply fine-ribbed, cream-coloured flushed with pink, and with



Agapetes macrantha.

mentioned, though they differ in life-history as well as in appearance, yet the same repressive treatment avails.—S. B. N.

The Saffron Crocus.

It is interesting to note that the Saffron Crocus (*C. sativus*) is an autumn bloomer, though Mr. Brotherston, we observe, suggests that the true Saffron Crocus so widely cultivated two hundred years ago in the neighbourhood of Saffron Walden, Essex, has been lost to cultivation. He had some flowers in his garden at Tynningham a year or two ago. Saffron was largely imported from Holland in the earlier decades of the eighteenth century, but Philip Miller's pamphlet on the Dutch method of cultivation did something toward establishing the English growth of these flowers. It is said that 4,320 flowers (or stigmas) were required to yield 1oz of saffron.

deeper V-shaped bars of the same colour. They are 3in long, with the stalk. The plant belongs to the *Vaccinium* family (*Vaccinaceæ*). The photograph represents an old specimen in the most floriferous state it had ever attained, having since the repotting a year or two ago made extra strong growth after being confined and somewhat neglected for several years previously. Its curiously barred and otherwise marked Chinese-lantern-like corollas, which are persistent for several weeks, ever afford much interest to visitors. The plant grows in one of the cool greenhouses in the Botanical Gardens, Edgbaston.

One of the reasons why this and other hard-wooded plants are not more commonly met with, is apparently the demand for larger quantities of cut flowers. It would hardly benefit a plant of the nature of this *Agapetes* to cut it in severely. But considering how long it, and the various *Ericas*, *Epacrises*, *Darwinias*, *Eriostemons*, *Grevilleas*, *Chorizemas*, and such like greenhouse flowers remain fresh and decorative, the wonder remains that they are not seen everywhere.



Fruit Growing in British Columbia.

On February the 7th, under the auspices of the London Chamber of Commerce, Mr. Martin Burrell delivered a lecture on British Columbia at the London Institution. Mr. J. H. Turner, agent-general for British Columbia, presided, and introduced the lecturer as one who had had a long and practical acquaintance with British Columbia, and especially with its horticultural development.

Mr. Burrell, in opening, remarked that a closer knowledge of the conditions obtaining in the outskirts of the Empire on the part of people at home would do much to strengthen the bonds, both of affection and of a more practical kind, which bound the people of Great Britain to their kinsmen across the seas. After describing the geographical and natural features of the great province from which he came, the lecturer gave, amidst much laughter, some amusing illustrations of the misconceptions which existed in this country regarding British Columbia. Continuing, the speaker indicated the character of the great industries of the country, dealing statistically and otherwise with the mining, timber, and fishery resources, and coming lastly to the horticultural industry, which he dealt with at some length.

It was only in comparatively recent years that a full recognition of British Columbia's great adaptability for fruit culture had come, and since the early nineties the acreage in orchard had consequently increased from 6,000 acres to over 40,000. Ample evidence of the splendid character of the fruit existed from the fact that for three successive years it had been awarded the gold medal of the Royal Horticultural Society, and that, in open competition with the great fruit-growing States of Washington and Oregon, British Columbia fruit had carried off the gold medal at a recent competition in Vancouver. (Applause.) Although it was difficult to convince the average English horticulturist that the fine finish and colour of British Columbia fruit were not obtained by some special method of culture, the lecturer assured them that the results were largely achieved by the magnificent climatic conditions of the province. Careful attention was, of course, paid to cultivation, and the great questions of grading, packing, and marketing had received special attention. They had long learnt the lesson that to grow the fruit was only half the battle, the other half being to see that it was graded and packed in such a way as to obtain the top price in the world's markets. "It appears to me," said the lecturer, "that the great weakness in English horticulture is the almost entire absence of any systematic method of grading and packing. (Hear, hear.) Just so long as growers put two or three grades of fruit in one package, so long will they continue to get the price of the worst, and not the best grade."

With respect to the cost of fruit-growing in British Columbia, Mr. Burrell said it was extremely difficult to state definite figures, as conditions varied so much and the personal equation had to be taken into account. Roughly speaking, however, he would put the cost of buying the land, preparing it, planting the trees, and bringing the orchard into bearing at about a total of £60 per acre. It should be remembered, however, that while a man's orchard was growing his assets were continually increasing in value, and after his orchard came into full bearing he should net from £25 to £50 per acre, taking one year with another. Actual results of from £70 to £100 per acre profit had been achieved, but the same perseverance and attention to detail were wanted to make a success in British Columbia as were required to make a man successful in business here. They felt, however, that when a man invested his energy and money out there, the rewards and opportunities were naturally larger in a country that breathed of expansion, youth, and a large and generous hope, than they were in the more crowded life at home. (Applause.) The lecture was illustrated by an exceptionally beautiful set of lantern slides, and the lecturer was given a hearty vote of thanks at the close of his address.

For the benefit of those who entertain serious thoughts of emigration to the now famous fruit fields of British Columbia, we would call attention to an article that appeared in "T. P.'s Weekly" on January 24. A correspondent is there directed to the Bureau of Provincial Information, Victoria, B.C., to gain facts as to where to go on arrival, the gaining of reliable information about the purchase of land, &c. We would also suggest that application be made to the Agent-General for B.C., at Salisbury House, Finsbury Circus, London, E.C.

Societies.

R.H.S. Scientific Committee, Feb. 11th.

Present: Mr. E. A. Bowles, M.A., F.L.S. (in the chair); Rev. W. Wilks, Dr. M. C. Cooke, Dr. A. B. Rendle, Prof. G. S. Boulger, F. D. Godman, W. B. Hemsley, H. T. Güssow, W. C. Worsdell, A. W. Sutton, W. Hales, L. H. de B. Crawshaw, G. S. Saunders, H. J. Elwes, J. T. Bennett-Poë, C. T. Druery, G. Gordon, W. Cuthbertson, J. Douglas, and F. J. Chittenden (sec.).

Red Currant Twigs Twisted.—Mr. H. T. Güssow showed shoots of Red Currant twisted and curled at the tips, arising from the confinement of the young growths under nets.

Microlooma lineare.—Mr. J. O'Brien sent specimens of this uncommon Asclepiad, showing how it climbs over bushes in its native home in South Africa. The plant was figured some time ago, but is very rare in cultivation.

Bigenic Orchid Hybrid.—Sir Jeremiah Colman showed a hybrid raised between *Diacrium bi-cornutum* and *Cattleya intermedia alba*. The colour of the *Diacrium* had been almost entirely lost except for a tinge of sulphur in the labellum. The parent species are usually regarded as being widely separated in natural relationship, but a hybrid between *D. bi-cornutum* and *Laelia cinnabarina* was awarded a botanical certificate on March 14, 1905.

Nomenclature of Hybrid Orchids, &c.—Some discussion took place with regard to the naming of hybrids between species assigned to two or more genera. The general opinion was that such hybrids should, when raised between plants belonging to two different genera, have the names of both genera indicated; but where the progeny was the result of crossing a bigeneric hybrid with a plant of another genus altogether, a purely conventional name should be assigned, preferably with a distinctive termination. The further discussion of the matter was adjourned to another meeting.

Diseased Sweet Williams.—Lady Hopkins, of Romsey, sent Sweet Williams in a dying condition with pale brown spots upon their leaves, which were due to the attacks of the fungus *Puccinia dianthi*. This fungus frequently proves fatal to the Sweet William, and the infection is said to be carried in the seed, so that whole batches are killed. The particular variety in the present case was "Pink Beauty," and the present is the second year in which the trouble has occurred, though in different spots in the same garden.

Insects on Oleander, &c.—Mr. G. S. Saunders reported that he had examined the insects found upon various plants in a greenhouse, and sent by Mr. Stanton Brown, A.R.H.S. They belonged to the family Psocidae, and were specimens of the uncommon species *Cæcilus Dali*. This species is not known as a plant pest, but is said to feed upon fungoid matter of various kinds, mould on palings and rust fungi on leaves, &c. They are most frequent upon the bark of trees.

The Horticultural Club.

ANNUAL MEETING.

At the annual general meeting of this club, held at the Hotel Windsor, on Tuesday, the 11th inst., a very satisfactory report was laid before the members, the membership being well sustained, and the financial position good, though the club had to deplore the deaths of several members, including Dr. Masters, Mr. James Veitch, and Mr. Asbee. During the season a number of most interesting and instructive lectures had been given after the monthly dinners, among which those of Mr. A. W. Sutton on his visit to the remarkable rock city of Petre, illustrated by a marvellous series of lantern slides, and that of Mr. G. Gordon on "Gardens of Roses," illustrated by numerous striking photo slides, taken mainly by himself, were specially noteworthy. Among the new members were Prof. Farmer and Sir Frank Crisp, the latter of whom had accepted the vice-presidency of the club.

Sir John J. D. Llewelyn, Bart., was unhappily prevented by indisposition from being present either at the meeting or the subsequent dinner, at which Mr. Harry J. Veitch consequently presided. The dinner, of which some eighty members and guests, including a good number of ladies, partook, was as usual a great success, the list of toasts and replies being alternated with instrumental, vocal, and humorous interludes of high merit, while the tables were beautifully decorated with flowers, thanks to the generosity of Messrs. Veitch. After the usual loyal toasts, Mr. Harry J. Veitch proposed that of the "Horticultural Club," alluding to its association with the Royal Horticultural Society, and to the aid rendered thereto at the critical period of depression of twenty years ago, now so happily replaced by a flood-tide of success, such as had that day been recorded in the neighbouring hall. Professor Farmer responded, and especially emphasised the value of the club, not merely as a social centre of horticulture, but as constituting a material adjunct to the greater society, by its lectures, papers, and dis-

cussions, which did so much to bring together for mutual and general benefit, the scientist and the practical grower. The toasts of the Royal Horticultural Society was ably given by the Rev. J. H. Pemberton, and responded to in a very humorous and piquant speech by Sir Albert Rollit. Sir Frank Crisp proposed the health of the chairman, Mr. Harry J. Veitch, in telling and appropriate terms, and in replying, Mr. Veitch proposed that of the indefatigable honorary secretary of the club, Mr. E. T. Cook, to whom its success was so largely due. Mr. W. A. Bilney proposed the toast of the "Visitors," to which Mr. P. Anderson Graham responded, and also Col. Lewis, a visitor from the Cape, who gave an interesting insight into our relations with our Colonies generally, and especially with South Africa, relations which only required encouraging on this side to become ever more and more cordial.—C. T. D.

British Gardeners' Association.

The last meeting of this association was held on February 11 at the R.H.S. Hall, Westminster, Mr. Chas. Foster in the chair. Twenty-four new members were elected, bringing the total up to 1,163. The secretary submitted a detailed statement estimating the receipts and expenses of a monthly "Journal." The question was thoroughly discussed, and was decided by eight votes to three that a monthly "Journal" should be established in April—after the next issue of the present quarterly. A request to have a meeting for the benefit of gardeners employed in the London parks having been received, it was decided that one would be held at Carr's Restaurant, on Saturday, March 7, at 7 p.m., and the secretary was deputed to give an address on that occasion. It was also decided to send a delegate to address a meeting at the Wesleyan School, Evelyn Road, Richmond, Surrey, on Tuesday, February 25, at 8 p.m., when Mr. Hawes will be in the chair. The secretary was instructed to procure a die for the new certificate.—J. W.

Royal Gardeners' Orphan Fund.

Annual Meeting.

The report of the executive committee and statement of accounts for the year ending December 31, 1907, were presented and adopted at the annual meeting held at "Simpson's," 100, Strand, W.C., on Friday last, the 14th inst. Mr. H. B. May presided, and there was a small attendance, many of the nurserymen and other supporters being under the influence of the present common enemy, influenza. Mr. May spoke as to the satisfactory nature of the report, and moved its adoption, which was seconded by Mr. Wm. Marshall, V.M.H. The recommendations contained in the report were therefore carried out; and the officers were each re-elected and thanked for their past services. The scrutineers of the ballot were Messrs. Alderson, Wm. Cuthbert, G. H. Cuthbert, W. Bates, J. Lyon, W. Roupell, and W. Poupart, and at the conclusion of the poll the following candidates were declared duly elected:—

VOTES		VOTES	
Warwick, Percy E. S. ...	377	Tiekner, Hilda A. E. ...	257
Claxton, Lucy M. ...	367	Seamen, Bessie ...	221
Arnold, Alice ...	351	Thomas, Thomas H. ...	182
Smithers, Herbert, E. ...	358	Blackmore, Ethel M. ...	133
Lamond, Jeanie H. ...	323	Wiggins, Dorothy ...	130
McCallum, John H. ...	322	Mullens, Wm. H. N. ...	127
Ward, Edward J. ...	294		

The following unsuccessful candidates, owing to the present fortunate circumstances of the charity, were able to be elected by special resolution, namely, Ellen Ashton, Algie R. Gascoigne, Reginald G. Grist, and Violet G. Randall. We would call special attention to Mr. Clayton's letter, which is printed on page 166.

REPORT FOR 1907.

In presenting their twentieth annual report, which practically brings the official record of the operations of the fund since its establishment up to its twenty-first birthday, the committee most heartily congratulates all past and present supporters on another year of steady progress and increasing prosperity and usefulness, and on a record of good work accomplished during the twenty years of the existence of the fund, such as none could have anticipated, who, in the early months of 1887, took part in laying its foundation.

At the end of the first year a very modest start was made with the election of eight candidates at a cost of £139 15s. At the end of 1907, the number of children in receipt of the full allowance, granted after election, was ninety-five, while nineteen others were receiving much-needed financial assistance while waiting for advancement to the full pay list, the total amount distributed during the year being £1,511 10s., or £100 more than the previous year's total. At the commencement of 1907, there were ninety-five children receiving the full allowance, and nineteen were added to the list at the annual meeting in February, bringing up the total number of orphans elected during the twenty years to two hundred and thirty-six, while the total sum expended in allowances and grants in aid during the same period amounted to no less a sum than £17,884 12s. 6d. The total amount of the receipts from all sources up to the end

of 1907 is £36,884, to which, besides providing the large sum distributed in accordance with the objects for which the fund was established, has enabled the committee to provide a reserve fund of over £11,000, all well invested, and the dividends accruing from which more than provide for all necessary working expenses.

As regards the accounts of the past year, which show an increase in receipts over 1906 amounting to £69 18s. 10d., an increase of £100 in the children's allowances, an addition of £120 16s. 11d. to the amount invested in Consols, an addition of £50 to the deposit account, and a larger sum carried forward; the committee have again to deplore the one weak spot, i.e., the comparatively small sum received in the form of annual subscriptions, and once more most earnestly appeals for a larger measure of support under this heading.

Under the genial, and so happily appropriate, presidency of "the children's Lord Mayor," Alderman Sir William P. Treloar, Bart., the annual festival dinner held at De Keyser's Royal Hotel, E.C., on May 23, was again both socially and financially an unqualified success, the chairman's list for the second time in the history of the fund exceeding £1,000, while the attendance of friends and visitors was also larger than heretofore. In commending the claims of the fund to generous support, Sir William remarked that "the work done was beyond praise, and it was a terrible thing to be left destitute, so that it was the bounden duty of all to assist those children whose unhappy lot it was to be left without parents or money," and so satisfactory a response must have been as gratifying to Sir William Treloar as it was to your committee, and they gratefully tender to him their hearty and most cordial thanks, at the same time inviting the subscribers at the annual meeting to join them in marking their sense of his kindness by electing him a vice-president.

With the utmost possible satisfaction the committee make the announcement that in order to fittingly celebrate the coming-of-age of the fund, the noble President, the Duke of Bedford, K.G., has most kindly consented to preside at the forthcoming festival, which has been arranged to take place at the Hotel Cecil on Tuesday, May 12, when it is earnestly hoped that all friends and supporters will unite with the committee in their efforts to render the festival worthy of such an auspicious occasion.

The warmest thanks of the committee are again most heartily accorded to all who have assisted in promoting the welfare of the fund during the past year, and especially is grateful acknowledgment due to the Right Hon. Mary, Countess of Ilchester, Sir Frank Crisp, and Major John W. Dent, for so kindly opening their private gardens to the public in aid of the charity, to the stewards at the annual dinner, the honorary local secretaries, and the many good friends in such centres as Altrincham, Chesterfield, Bradford, Reigate, Chislehurst, &c., who have again sent up most acceptable contributions.

With very sincere regret the committee records the fact that the fund has suffered grievous losses during the year by the lamented deaths of so many constant and valued supporters. From the rôle of vice-presidents the names of Lord Battersea and Dr. Maxwell T. Masters, F.R.S., will be greatly missed. Lord Battersea will be specially remembered for his graceful advocacy of the claims of the charity to the support of all lovers of horticulture at the annual dinner in 1900, while Dr. Masters from the inception of the fund had wholeheartedly supported it in every way, and specially rendered most valuable assistance in the drafting of the rules, which, largely owing to his sagacious counsel, have since been found to work so smoothly. Very deeply indeed do his old colleagues deplore the loss of Mr. John Asbee, who for nineteen years was one of the most regular attendants at the meetings of the committee, and an enthusiastic and sympathetic worker, and who, by his admirable organisation of the splendidly successful floral displays held in Covent Garden Flower Market in 1888 and 1889, so largely helped to increase the size of the "nest egg" of those early days. Very keenly felt also is the death of Mrs. Charlotte Head, widow of Mr. W. G. Head, a former active member of the committee, and who, since her husband's death, had been an enthusiastic collector for the fund, and in a few years raised a sum amounting to nearly £150. Other supporters whose contributions will be greatly missed were Miss Ann Hayes, Mr. J. F. Blackwell, J.P., Mr. Charles Kauffman, Mr. James H. Veitch, and Mr. George May.

During the year the committee has again been much gratified by the generous assistance rendered to the fund and the keen interest taken in its management by the treasurer, Mr. Edward Sherwood, who is hereby most gratefully thanked, and very cordially nominated for re-election.

The members of the committee who retire by rotation are Mr. W. R. Alderson, Mr. George H. Barr, Mr. George H. Outhbert, Mr. William Howe, Mr. John Lyne, Mr. William Poupart, Mr. Thomas W. Saunders, and Mr. William P. Thomson, and, all being eligible, offer themselves for re-election. For the vacancy created by the death of Mr. Asbee, the committee has great pleasure in recommending the election of Mr. Edward Parsons, of Messrs. Parsons and Co., Ltd., Fruit Market, Covent Garden, a gentleman who for some years past has

Market Gardening Notes.

RETARDING POT VINES.

Swanley does this well. The pots are laid in a trench, the soil filled in with the rods absolutely lying the whole length on the ground. This not only keeps the eyes dormant, but what is of far more importance, secures a very regular break, up to the bottom eye. Naturally the Vine rod, in its erect position, pushes and does best from the top buds. Equally the Vine rods laid horizontal on the cold soil fulfil these particulars, to wit, a late but regular break.

MARGUERITES.

Whether for 60's or out of 60's into 48's, potting is a very important item with the market grower. First as to 60's out of the cutting box—have a few thumbs also ready, these taking the smaller plants. Nothing retards and weakens the Marguerite more than overpotting. The plants seem to linger when so treated. Do not overwater the newly-potted stuff, and keep a sharp lookout for the maggot. Potting from 60's to 48's requires a firm hand, the aim being to get a potful of roots without a large head of foliage.

TULIP DISEASE, BOTRYTIS PARASITICA.

This is sometimes called the "Tulip mould," and quickly turns into rot. In conversation with a large Covent Garden grower, he assured me he expects to drop £100 in the loss of bulbs, not counting the labour. Speaking of one variety alone, Murillo, boxes of thirty-five bulbs have only seven sound ones left. Very rapid is the spread of the disease; the first year he has had it. The result will be the giving up Tulips for next year. [Mr. Castle sends us bulbs of these, which will be examined.]

TOMATOES.

The market world is preparing for the new season's crop. The increase in the breadth of culture is very striking. Not only are these the first crop for new houses, but they also follow the winter Cucumbers. Again, even in vineries and Peach houses, plants in pots are being forwarded. Tomatoes are thus everybody's "fill-up"; a most useful line. The aim should be to have sturdy plants of good constitution, and these to be planted out when ready. Keep tops dry, and only water to keep steadily growing.

STAKING AND TYING IVY-LEAF "GERANIUMS."

Good growers know the importance of this being done early. Whether for selling in 60's (a large trade) or for 48's, be in advance with the work. This is sound advice, not only on the score of economy of labour, but also for the benefit of the plant. A good house of these are worth money when well done. Why we get so much of the rougher samples is due to, first, the crowding, then neglect in the necessary work of staking. Early attention gives the plant a better head, fit for the market whenever required; some doing a good trade when plants are in bud.

FLOWER PACKING.

"Facing up" Daffodils and Narcissi from the Wisbech district was very marked this morning. A good top layer, but distinctly inferior at the bottom. N. ornatus, the pheasant-eye, showed up worst. Regular customers fight shy after buying once. I am sure that nothing is gained to-day by any line "off the straight," in these days of keen competition. There was a better sale, and prices firmer, but at the close of the market such stuff as I refer to sold out below the average market price.—STEPHEN CASTLE, February 18.

Vegetables.

Veitch's Climbing French Bean.

Within recent years, Climbing French Beans have become so popular that their names in seed catalogues begin to assume a "foreright" prominence. They might almost be said to be getting too numerous. It is, however, not our purpose to disparage the admirable attempt of the hybridist to evolve something better; rather our aim is to extol the merits of one of the earliest known varieties, if it is not an absolute pioneer. Veitch's Climbing Bean has been in cultivation some years now, and in the race for supremacy this one is not yet left behind.

First thoughts in cultural matters naturally turn to the open-air sowings. But we are equally satisfied that in the forcing house this Bean can do, and does, good service. Unfortunately it is not everyone who has the convenience for accommodating these taller Beans, but where space does exist, we might be allowed to emphasise its value, in common with the dwarf varieties. With sufficient soil space, head room, and freedom from red spider, it is possible for one sowing to outlive two or three of the dwarf kind. When in normal health and a succession of leading or lateral shoots can be maintained, there is a very marked regularity of pods available for the kitchen.

In its length and character, Veitch's Climbing is in reality a counterpart of that good Bean, Canadian Wonder, from which we believe it came as a chance seedling. Many others have at intervals been found among varieties of the dwarf French, but it is only occasionally that one better, or even so good as Veitch's, is found. We have recollections of stray runners



Veitch's Climbing French Bean.

appearing among an outdoor sowing of Canadian Wonder some twenty-five years since at Marston, Frome, whose gardens then were under the charge of Mr. Iggulden. Some attempt was made at selection, but as a similar "break" had happened a year previous in the Longford Castle Gardens, Salisbury, the aspect of novelty at once lapsed. We are not quite sure whether

of not the Longford stock became the future famous Veitch's Climbing, but in any case this seemed a counterpart. Mr. Ward, for so many years gardener at Longford Castle, and a well-known vegetable expert, discovered long ago the value of these "trailing" or taller Beans for the forcing house, and we might repeat, that where space admits them, there is direct economy in their adoption.

A very common experience, though by no means a universal one, is that these French Beans are readily accepted from the New Year up to the time when the Scarlet Runners are ready. The moment the latter come to table, as quickly the French pods drop out, and are not again admitted so long as the others are available. With highly cultivated palates, and high-class chefs, however, this is not so, for the greater delicacy of the smooth pod offers a tempting dish, and also in the exhibition tent, and the servants' hall. Experience gained within recent times compels respect for the dining-room demand, even though more space may be devoted to the stronger growing, fuller-flavoured Scarlet Runners. Under forcing or open-air conditions, when a regular succession of pods is a necessity, much may be gained by a periodical pinching of the leading shoots. This sets up lateral growth, which in turn brings flower and pod. Unless this trivial rule be observed, there is not the same economy of space, or regular and full-measured gatherings each day.

For forcing, we find boxes, each 4ft in length, 12in deep, and the same in width (all outside measure) accommodate four plants each. As we have already remarked, there is one prominent impediment, and that is the necessary head room, without which their culture cannot be attempted. Red spider, the bane of the French Bean under forcing conditions, must be "held up" by frequent baths from the engine or syringe. Once allow these small but insidious enemies of the Bean to gain foot-hold, the future prospects and profits of the plants become more or less jeopardised.—W. STRUGNELL.

Law Notes.

Creosote and Plants.

In the King's Bench Division, London, recently, Justices Phillimore and Walton, sitting as a Divisional Court, concluded the hearing of the case of *West v. the Bristol Tramways Company*, which was an appeal by the company from the decision of Judge Castle, sitting in the Tolzey Court. It appeared that the plaintiff, a market gardener, of Bristol, alleged that by reason of the defendant company having paved the roadway opposite his garden with wood blocks treated with creosote, his plants, &c., had been injured, and sought to recover damages for a nuisance. The case was tried before the Recorder and a special jury, and resulted in judgment for the plaintiff. The defendant company appealed against that judgment, contending that they were protected in what they did by their statute. At the conclusion of the arguments Mr. Justice Phillimore said in his opinion the appeal should be dismissed. Mr. Justice Walton concurred. The appeal was dismissed with costs accordingly. Leave to further appeal was granted on the defendant company consenting not to ask for the costs of going to the Court of Appeal in the event of their succeeding in that court.

The Assessment of Market Gardens.

At a meeting of the Eastern District Committee of Stirling County Council held at Falkirk, February 14, reports the "Glasgow Herald," for the purpose of disposing of assessment appeals; consideration was resumed of the appeal by William Murray and Sons, market gardeners, Polmont, in which an interesting point was raised. Mr. Hugh P. Black, solicitor, Falkirk, who appeared on behalf of the appellants, explained that his clients, who were the occupiers of market gardens and green-houses appealed against the mode in which they had been assessed. Their annual rental was £190 10s., and they had been assessed on the basis that £100 represented agricultural subjects and £90 ordinary assessable subjects. He contended that under the Agricultural Rates Act of 1896 appellants were entitled to have the whole of their subjects regarded as agricultural lands and heritages, and to be assessed only on three-eighths of the annual value as it appeared in the valuation roll. The whole subjects were used by his clients in the ordinary course of their business, and although from their nature certain of the products required a covering of glass and artificial heat for their cultivation, he claimed that the mere fact that there were erections on the subjects of that class did not exclude his clients from the benefit of the Act. Mr. Patrick Welsh, county clerk, having been heard in reply, the committee retired to consider their decision. On their return Mr. Peddie Waddell, who presided, intimated that by a majority the appeal had been sustained.

Young Gardeners' Domain.

* * The prize is awarded to Mr. G. W. Sizer for his letter hereunder. Honourable mention is accorded to "Plenus."

Propagating Coleuses.

To raise ornamental Coleuses from seeds is most interesting, and many varieties can thus be obtained. The seedlings will make fine specimens the first season, even from a sowing made in February. Flower pots are preferable to pans for sowing the seeds in, and for growing on the seedlings in the earliest stages. Fill them with a mixture of light turfy loam and sharp sand. Sow the seeds thinly on an even surface, and sift a light covering of soil over them. Place the pots in a temperature of not less than 65deg. As the seedlings readily damp off, watering needs particular care. When well up and developing the second leaves, lift the seedlings carefully and transplant them round the edges of pots, which must be kept shaded and near the glass. It will soon be seen that there are strong green seedlings and weaker coloured ones. The green ones are worthless, but coloured ones should be transplanted into single pots, shifting on until the desired size of a pot is reached. Useful plants are secured in 5in pots, and 6in pots are large enough for plants suitable for decorative purposes. Usually the plants do not require stopping, but irregular growths should be pinched so as to secure equally balanced specimens. Coleus cuttings also strike freely at almost any time of the year, if given a temperature of 60deg to 65deg at night, and 70deg to 75deg by day. They are best put two in a pot, or separately in small pots, and in a moist atmosphere, and with shade from bright sun soon become rooted, when they may be potted on, allowing a liberal shift each time. They should be potted fairly firmly, and watered carefully at first, and freely when growth has commenced, giving occasional doses of liquid manure when the plants are established. To obtain colour highly developed in the leaves they must be grown in comparatively small pots. Specimens, whether for conservatory decoration or exhibition, will need pinching repeatedly to secure the desired pyramidal or globular form, it being important to lay a good foundation. Flowering must not be tolerated where fine well-coloured foliage is desired. Finally, I might say that as Coleuses cannot be wintered safely in a lower temperature than 55deg, growing them from seeds is certainly advantageous to those with little heat and room.—G. W. SIZER, Elsham Hall Gardens, Lincoln.

Plant Nomenclature.

An essential part of a gardener's education is the ability to name plants correctly. It is a branch of education which is never complete, as we are constantly finding plants new and strange. How often do we see plants wrongly named, the names misspelt, and capital instead of small letters used. A label carrying a wrong name is worse than no label at all, and when misspelt is a slur on the education of the person who wrote it. Catalogues are so easy to obtain nowadays that there is no excuse for a name being misspelt. Nothing seems to give the average journeyman greater delight or a more pronounced feeling of his own importance than to catch the foreman or head gardener napping in this respect. To find he knows a species or variety of which they are ignorant gives him a sense of superiority for the time being. How keen he is to impart his knowledge to them, and what tales he has to tell of the wonderful examples of the particular plant which are to be seen at "my last place."

Anyone who possesses a copy of Nicholson's "Dictionary" will find it a great help. In it will be found most everything in cultivation, besides hosts of plants never seen outside a botanic garden. A slight knowledge of botany is a great help when identifying plants, but as the various botanical terms are all to be found in the dictionary, that need be no obstacle. Florists' flowers, especially those which are annually increased by many new varieties, are difficult to name, as many are so much alike that it is only by comparison with a good collection that one can be sure. It is surprising what a wonderful knowledge can be acquired by an observant person who has the handling of a good collection of any particular class of plants for a few years. Every little variation of foliage and flower is noted, and such a person can in many cases name any plant in the collection, even when not in flower, without looking at a label. A visit to Kew or any of the botanic gardens will be a field day for acquiring knowledge, and with the aid of a notebook and pencil such a day will be very instructive. Visiting any of the larger horticultural exhibitions is another part of a gardener's education, which should be indulged in as far as time and means will allow. A walk through a nursery, or a look round a neighbouring establishment, will also add to our knowledge, not only of the names of the plants, but of many cultural details and other useful information. On returning home fresh names may be looked up in a book of reference, and as many catalogues as can be found to see if there is any fresh information to be obtained on the subject.

It is said of some of the old school of gardeners that they are never at a loss for a name, as if unknown to them they will invent one. Such a course is not to be recommended, as there is always the possibility of catching a Tartar, who may be enjoying a laugh at our ignorance.—PLENUS.

An Appeal to Scotsmen.

At the commencement of the present year we had published in the *Journal* the list of prizewinners of the departed year. As I take a great interest in the "Y. G. D." one thing vexed me, and that was the question, or rather the need of it, "What are our young Scottish friends doing?" What will the Scots in England think of the youths of their dear homeland, as McKellar, McGregor, McLeod, Cook, Gibson, Smith, and others, not to speak of the chiefs at home, who stand second to none in horticulture? I always notice that these men contribute largely to the gardening papers. Who are to fill their places? Had you ever a better chance of preparing yourselves for that work than by composing an occasional article for the "Y. G. D."? I appeal to you to use the talent which I know abounds.—B. J. D.

Osmanthus.

At this season of the year, when there are few flowers to be seen outside, we take particular notice of our evergreen trees and shrubs with their different shades. It is with regard to one of these subjects I should like to write a few words. The *Osmanthus* are very attractive evergreens; and might at a glance be easily mistaken for Hollies. But the leaves are smaller, and are opposite, whereas in the Holly they are alternate. *O. aquilifolium*, the commonest of all, has prickly-toothed, spiny leaves. *O. ilicifolius* is a form of the above, more dense in its growth, and the leaves smaller. This variety has been in flower for some weeks, but is nearly over. The flowers are of a greenish white, and are very fragrant, borne in clusters of five to seven in the axils of the leaves, and mostly on the old wood. There are two variegated forms of this variety, *aureo-variegata* and *argentea variegata*. The two varieties are both very attractive throughout the year. The above mentioned vary from 2ft to 5ft in height. *O. i. purpureus* is another striking species, growing about 4ft high, and having dull red leaves. *O. myrtifolius* is of a very compact habit, with stiff rigid leaves, which are spineless and slightly serrated on the outsides. *O. rotundifolius* seems to resemble the tree Box. The leaves are thick, large, and are a deep glossy green.

These plants can be propagated by cuttings taken about August, using some old potting compost, with a little sand added, placing them four or five in a 48-sized pot, using a cold frame, and keep them close till rooted. When ready and hardened off they can be potted on, which will give them a better chance to make nice plants for planting out into their permanent quarters. Small plants are very useful to plunge into a border that is empty throughout the winter, with other evergreens. These plants could be lifted out in the spring. I might mention in one of my situations this was done every year when the border was empty. It contained various species of conifers, both tall and short, and it seemed to give the border a suitable and neat appearance. They are very well adapted as corner plants, or when planted in clumps in the wild garden they are very effective, and make fine specimen shrubs.—T. N.

Plants from Seed.

A great mistake that is often made, and especially with young gardeners, is sowing the seed thickly. The pots or pans must be well drained, then put a little moss or leaves over the cracks. When putting in the soil great care must be taken to have it as fine as possible on the surface. This applies more especially to very fine seeds, such as those of *Cinerarias*, *Primulas*, or *Lobelias*. A good sieve for this purpose is made with a piece of perforated zinc, like that used for meat safes, tacked upon a frame. For if the surface soil is not as fine as possible, the minute seeds appear as though among rocks, and a great many will fail to germinate at all. The seeds must be sown very carefully and evenly all over the surface of the soil, and make it a practice to sow as thinly as possible. Another mistake that is often made is covering the seed too deeply. It must only be just covered with soil. In the case of *Begonia* seeds do not cover them at all. Then we come to the very important part of the work, that is, the watering. If watered with a can, it must have the finest rose that it is possible to get, such a rose as is supplied with the Hawes patent cans. But I prefer to take the pots separately and hold them in the tank up to within about a quarter of an inch of the top of the pot, keeping them there until the water oozes up through the surface of the soil. In this way the finest seed is uninjured, and not washed out of the position in which it was sown. A piece of glass should then be set over the pot, which is now placed in a warm greenhouse or pit. As soon as the young seedlings have made their third leaf, they must be pricked out very carefully into boxes or pans, and the latter staged as near the glass as possible, and kept shaded from the

hot sun. As they grow they must be potted off singly or put into boxes, according to the nature of the plant. But never allow them to get overcrowded or drawn, or failure is sure to follow.—W. E., Chertsey.

Moschosma riparium.

This lovely half-hardy perennial is well worthy of cultivation. Cuttings root readily in a propagating case with a gentle bottom heat. They should be put in about February, two or three in small 60's. Afterwards pot them singly into 3in pots, using a light and porous compost. When they have taken hold of the soil, remove them to an intermediate temperature where they can receive plenty of sun and air. About May they will be ready for another shift into a 6in pot, this time using a rougher compost. At this potting, if the weather is at all favourable, they are better placed in a cold frame, as they then produce sturdy growth. They must have the tops constantly pinched out to make them bushy plants. About the end of June they will require their final pot, which will be an 8in size. The compost previously mentioned will do again, only adding a few ground bones. When potted place them between the *Chrysanthemums*, where they will remain till time for housing. To have a good display of these lovely flowers about Christmas time, they should be placed in an intermediate house ten weeks before. If the old plants are shaken out and repotted they will make fine specimens, some being a yard through, and will flower much earlier.—C. E., Grimston Gardens, Yorks.

Asparagus.

This can be propagated by seeds, or by dividing the crowns, the former being a ready means, but not so quick in giving returns as the latter. In forming beds or plantations, a site should be chosen open to the sun, but sheltered as far as possible from strong winds, which often inflict much damage during summer and autumn, unless the shoots are securely staked and tied. Where the land is light and open, little more than an ordinary trenching and manuring will be necessary, but where it is heavy and clayey it will require something more to make the land in a condition to grow good *Asparagus*. It is essential that the land should be well drained and trenched to the depth of 3ft, leaving the bottom spit where it is. At the same time give a dressing of lime rubble and farmyard manure. The soil from the next trench may then be placed over this, and so on, until the plot has been finished. Before planting in the spring, ground thus treated may be given a liberal dressing of grit or rough sand, to be forked in previous to planting the beds. April is a good time for planting. Mark out the beds 5ft wide, and to prevent the shape of the bed being deformed, drive a wooden peg in each corner, leaving a 2ft alley between the beds. Make narrow trenches for the roots 1½ft apart, then having everything ready for the reception of the plants lift them, exposing them as little as possible to the air. Allow a space of 1ft between the plants, spreading the roots out evenly, and working fine soil among them, covering the crowns to the depth of 3in. Seed should be sown in March. A 5ft bed, similar to above, will contain four rows of seed, sowing them in drills 1in deep, and about the same distance apart, thinning the seedlings out to 9in apart before they become overcrowded. The second season they may be planted in their permanent beds. Summer culture consists in keeping down weeds. Early in November the stems should be cut down close to the ground, and the beds cleaned and mulched with half decayed manure. In April, on light soils, a good sprinkling of salt may be given with advantage. During the growing period, liquid manure is beneficial to *Asparagus*, the size and quantity of the heads being increased by applications of concentrated fertilisers. No heads should be cut the first year, or until the second after planting, and this operation should cease at the end of June. Under proper treatment a bed will continue productive for many years. Varieties:—Connover's Colossal and Sutton's Perfection. Roots subject to attacks of the *Asparagus beetle* (*Crioceris asparagi*) may be dusted with newly-slaked lime, syringe with soapy water, and dust surface of bed with soot.—J. C., Kinnel Gardens.

Trade Catalogues Received.

- Barr and Sons, King Street, Covent Garden, London.—*Spring Bulbs*.
Wm. Cooper, 751, Old Kent Road, London, S E.—*Annual Clearance Sale*.
Dickson and Robinson, Cathedral Street, Manchester.—*Farm Seeds*.
Dicksons, Chester.—*Farm Seeds*.
François Gerbeaux, 21, Rue de Cronstadt, Nancy, France.—*Plant Novelties*.
Vilmorin-Andrieux and Co., 4, Quai de la Mégisserie, Paris.—*Chrysanthemums*.



Hardy Fruit Garden.

PLANTING.—The weather during the past week or two has been exceptionally favourable for all kinds of work upon the land, both in preparation and planting afterwards. Those who fail in taking advantage of such conditions will be much to blame, for after such dry weather during the present month, it is quite possible March may take up the functions usually associated with February, and thus cause work which might have been completed this month to be delayed until the autumn.

PRUNING GOOSEBERRIES.—Where, owing to the attacks of birds, the pruning of these has been delayed, it will be wise to get the work attended to without further waiting. They are distinctly moving and a continuance of the present fine weather will tend to move them still faster. All sucker-like growths should be removed from the base of bushes, and where the branches are too thick they should be thinned to facilitate picking as well as for the sake of the growths. We seldom shorten the shoots except in forming young bushes, as we do not believe in the practice of spur pruning Gooseberries, especially where large crops are needed.

PEACHES AND NECTARINES.—If these have been removed from the support of walls, they ought now to be pruned and secured in position. Pruning should be carried out as previously directed, the aim being to secure a sufficient number of bearing shoots for the coming season, without overcrowding. Where shortening is necessary always cut to a triple bud, to ensure a wood bud being left to carry on the growth and circulation of the shoot.

RASPBERRIES.—Get the planting of these finished immediately. Late planting of these plants is not to be recommended, as we have proved from past experience. In planting Raspberries always choose sturdy canes with plenty of roots in preference to larger ones. Some growers plant at 4ft apart, but we consider this too close, especially for very strong growers. Five to six feet is more suitable and is more satisfactorily, particularly in large plantations, which must, to a considerable extent, be cleaned by horse labour.

FILBERTS.—The pruning of these and Cobnuts may generally be carried out at about this season, as the female blossoms will be in evidence, and it can thus be seen what growths may be removed with the least amount of detriment to the crop. Endeavour to leave a sufficient number of catkins for fertilisation, or a poor crop may result.

PRUNING.—Trees planted in autumn may with safety be cut back at once, allowing those more recently set out to wait a week or two longer. Strong growths may be shortened about a third, weaker shoots accordingly. Maidens with good leads may have these shortened back to about a foot from the working, where needed for bushes or fan trained trees.—J. W., Evesham.

Fruit Culture Under Glass.

FRUIT TREES IN POTS.—Many growers can grow pot trees who require the house for other purposes in the autumn, when the trees are at rest; and splendid results follow pot culture. This I have earlier referred to, and would now only briefly advise starting the trees and giving them a full season's growth. Trees that have been wintered in the open or plunged in ashes, should now be placed under glass, and in arranging the trees allow space for future growth, and avoid crowding. At the start avoid high temperatures; this more applies to stone fruits than others; 45deg at night should not be exceeded, and in the day-time ventilation should be freely afforded. In mild weather a little air on the top ventilators at night is beneficial, so that the atmosphere is always sweet. Previous to placing in the house any misplaced wood should be removed, but this is rarely necessary with well balanced trees, as the summer pinching will keep them shapely. Trees which have in the past suffered from aphides may with advantage get a thorough cleansing before housing. If clean this is not necessary; at the same time it is well to fumigate some little time in advance of the flower stage, as it will then keep the trees free through a critical period. One of the worst pests pot trees have to contend with is black fly. The trees should be damped overhead twice daily in fine weather, and a moist atmosphere in all parts of the house should be maintained till the flowering period, and a little more warmth as the flowers expand.

CHERRY HOUSE.—When a house can be devoted to these fruits they are splendid, and though they do quite as well as

pot trees planted out, they are small trouble, as they force with little fire heat, and give grand fruits yearly. These trees, to do them justice, require a fair amount of lime in the soil. This can easily be given in the shape of lime rubble or broken plaster, and, with liberal drainage and a good loamy soil, will furnish good fibrous roots. Planting should be done this month, and it is well to plant two-year-old trees and allow room for future developments, as it should be borne in mind that the Cherry will not stand severe pruning like the Peach and Nectarine, and much of the fruits are produced on spur growths, so that once the trees cover the spaces they give little trouble. The following are some of the best for glass culture:—May Duke, Archduke, and Late Duke; Early Rivers is a splendid black, also Waterloo. Frogmore Early, Bigarreau Napoleon, Governor Wood, and Emperor Francis are each free growers, and give fine fruits.

POT FIGS.—The trees started as advised will be swelling their fruits, and may now have more warmth; a temperature of 60deg to 65deg at night, and 10deg higher by day in good weather, and with more warmth more moisture will be required. When the fruits are a good size, syringe freely, taking care that all parts of the trees are moistened, as with the slightest neglect red spider will soon become troublesome. More water will also be required at the roots, but so much depends upon the size of the trees. Overwatering will cause a check, and cause the fruits to turn yellow and drop. On the other hand, with good roots, the Fig is a gross feeder, and soon robs the soil of food, so that assistance should be given in the shape of liquid manure or a good fertiliser. Top or surface dressings should also be afforded, and for this purpose some good pieces of turf placed round the edge of the pots and well decayed manure with loam over the surface, made firm, will assist the roots. Young trees may be grown as hard as possible, and the growths stopped as required. These will make fruiting trees for another season if good fruiting wood is built up for that work during the next few months.—G. W., Brentford.

The Plant Houses.

POTTING.—In the warmer houses there are evidences of new growth on many of the plants after their comparative inactivity during the dull winter months. The present is therefore a favourable time for overhauling the collections of stove and warm greenhouse plants, including palms and ferns. A number will only require top-dressing, while others, more especially the younger plants, will require shifting into a larger sized pot. Those in bad condition at the roots should be washed free from the old soil, remove the dead and decaying roots, and repot into smaller size pots. The transport of the plants from the houses to the potting shed, and vice versa, during bad weather is difficult in some establishments. Of recent years, when erecting new ranges of plant houses, more attention has fortunately been paid to this subject, and heated potting sheds have been built attached to, or connected with, the plant houses by a corridor. In gardens where the latter conditions do not exist a moveable bench should be used in the warm houses. This can be taken from one house to another as potting proceeds. Have sufficient soils for the purpose brought inside and warmed, so that when potting the compost will not strike cold to the young roots. After potting raise the temperature of the houses a few degrees, using the syringe freely, especially on bright days. The subject of potting plants is a wide and varied one, but lack of space forbids discussion here in detail. One or two points important to bear in mind are to use clean, well-drained pots, and not to overpot. Most palms, for instance, will thrive in pots that would, for many plants of equal size, be much too small.

ACHIMENES.—The season for starting a portion of the tubers is at hand. Shallow boxes or trays can be utilised for the purpose. Fill these to within three-quarters of an inch of the top with a light sandy compost made up of equal parts peat and leaf mould, adding plenty of coarse sand. Shake the small tubers out of the old soil, and lay the largest of them evenly over the surfaces of the boxes, about an inch apart. Cover with a quarter of an inch of the compost. If the stock of any varieties is short, the small tubers may be scattered thinly over the surface as if sowing seeds, and grown in the boxes for a year. A warm moist house is the best in which to start the tubers. One good watering in addition to syringing will probably be sufficient till growth commences. As soon as the young plants are 1in to 2in in length, they will be ready for transferring to pots and baskets. The latter are very decorative suspended from the roof of the greenhouse or conservatory. When filling wire baskets, line them with moss. Place the small plants through the wires round the basket at intervals, filling up with soil as the work proceeds. Return the plants to the warm house till established in the new soil, after which greenhouse treatment will be suitable.

BOUVARDIAS.—Introduce several plants of each variety into heat to obtain a supply of cuttings. Clean the plants,

shorten the growths, and soak the balls of soil with water. This will be ample moisture in addition to syringing several times daily during bright weather till growth commences. Besides increasing *Bouvardias* from cuttings, the larger roots if cut up into lengths, and placed in the propagating frame, will produce young growths. Other plants to start in a similar way are *Abutilons*, *Fuchsias*, and *Lantanas*.

TOP-DRESSING CLIMBERS.—In some establishments the growing of climbers on the roofs of the show house or conservatory is carried on under difficulties. Sometimes they are planted under the staging behind the hot water pipes. Any work in connection with the roots is thus awkward to accomplish. As much of the loose soil on the surface as possible without damaging the roots should be removed, replacing it with new soil, mixed in accordance with the known requirements of the plants dealt with. Incorporate with it a little well-decayed manure, or Thompson's fertiliser.—A. O., Kew, Surrey.

THE BEE-KEEPER

Bee-keepers' Terms.

One is often told that bee-keepers use strange terms to express their thoughts, and for this reason it is difficult for a person who has no text-book to follow articles on bee-keeping, and for these grounds I propose to explain some of the most common terms.

APIARY.—This is a place where bees are kept—that is, the spot on which the hives stand.

AFTER SWARMS are those swarms which issue after the first, and are often termed "casts." These often contain more than one queen, sometimes as many as six, and issue about eight or nine days after the first swarm.

ARTIFICIAL POLLEN.—When natural pollen is scarce, peameal or some other substitute is scattered among shavings or straw in a warm sheltered spot.

BEE BREAD is another name for pollen.

BALLING.—When a strange queen is introduced into a hive, the bees often cluster on the queen in the form of a ball in their attempts to sting her to death.

BLACK BROOD is another name for a contagious disease, called "foul brood."

BEE ESCAPE.—A mechanical appliance for getting bees out of supers, or allowing imprisoned bees to escape from the roof of a hive.

BEE SPACE.—The space between the combs and between the hives and the frame at the bottom and sides, and is reckoned about $\frac{1}{16}$ in. If more is given they fill in with comb to leave this space.

BEE MOTH OR WAX MOTH.—A small moth, the larvae of which feed on wax, and thus destroy the combs.

BRACE COMBS are small combs built so as to join two frames together.

BROOD COMB is comb used for breeding, generally workers, but it may be applied to drone comb.

CAPPINGS.—These are wax, or wax and pollen coverings of honey or brood.

COLONY is a stock of bees, consisting of a queen, a large number (40,000 to 60,000) of workers, and a number (300 to 400) of drones, in the summer.

FOUNDATION is a thin sheet of wax impressed by machinery with the shape of the base of the cells, and is given the bees in frames or sections in order that they may construct comb.

CANDIED HONEY is honey which has granulated through a low temperature, and which may be liquefied by heat (not boiling.)

HONEY DEW is a deposit on leaves (like drops of dew) by an aphid.

INTRODUCING CAGE is one for confining a strange queen on a comb before setting her at liberty, in case the bees should "ball" her.

POLLEN BASKET.—A spot at the second joint in the two back legs of the bee, where pollen is carried.

QUEEN CELLS.—Long cells like an acorn, found generally at the bottom of the comb and in the corners, and are the cells in which queens are raised.

QUILT is the covering over the brood frames or supers to confine the bees, and to conserve heat. They are generally of non-conducting material.

ROYAL JELLY.—The rich food for the queen larva is sometimes termed "chyle food."

SUPER is a receptacle in which surplus honey is stored.

TRAVEL STAIN.—Caused by leaving the supers on too long, and thus the cappings of the honey become dirty.

WEDDING FLIGHT.—When the virgin queen leaves the hives, about three or four days or even a week after hatching, to meet the drone for the purpose of being fertilised.—HYBLA.

TO CORRESPONDENTS

All Correspondence relating to editorial matters should be directed to "THE EDITOR," 12, MITRE COURT CHAMBERS, FLEET STREET, LONDON, E.C. Persons sending manuscript or photographs, when not specially requested by the editor, and making no demand for remuneration, are presumed to solicit publication without payment. In order that no misunderstanding may arise, and in order to secure the return of their contributions, contributors should state the fact that they expect remuneration, and in all cases, even when contributing voluntarily, correspondents should enclose a stamped envelope if they expect their enclosure to be returned.

ARTIFICIAL MANURES (X. Y. Z.).—Your query is being attended to.

MILNER'S "LANDSCAPE GARDENING" (S. Reay).—The publishers of this book are Messrs. Simpkins, Marshall, Kent and Co., Stationers' Hall, London.

CANON HALL MUSCAT GRAPE AS A STOCK (Oxon).—We would not think of working any sort of Grape Vine on this stock, unless by way of experiment. Black Hamburg would be most likely to succeed on it.

BOOKS (W. D.).—"Plant Breeding," by L. H. Bailey (Macmillan). This costs two or three shillings. Elementary botany books are plentiful, and one hardly knows which will suit you best. Macmillan's publish several, one by Bailey being very interesting to the novice, and not less instructive than others.

ARBUTUS FRUITING (A Lady).—*Arbutus Unedo* is a native of Ireland, and under favourable circumstances may be seen in the early winter months laden with pendant clusters of scarlet fruits. An unfavourable autumn or premature cold will so much affect the flowers as to destroy all chances of fruit. Yours is the true kind, and the invariable bareness of all your shrubs is doubtless owing to an unfavourable position. Transplant one or two into sheltered sunny nooks, and you will probably be rewarded by obtaining some of the fruit which has so justly excited your admiration.

PRUNING YOUNG PEACH TREES (A Constant Reader).—If the growth is vigorous it should only be slightly shortened, but if weakly severe pruning must be practised. We gather from your note that your trees are vigorous, and therefore would not reduce the shoots of 3ft long which you mention more than $\frac{1}{2}$ in or $\frac{1}{4}$ in, thinning it out to allow sufficient space for new growth, pruning the shorter lateral shoots slightly, and thinning them freely. Let the lower leading shoots be left considerably longer than those near the centre of the tree in order to secure an equal distribution of vigour.

CUCUMBER ROOTS DISEASED (T. H.).—To attempt applying a remedy to Cucumber roots badly affected with excrecences is to waste time needlessly. Raise fresh plants from seed, not from cuttings of the affected plants, which destroy. Remove the whole of the soil, give every part of the interior walls a thorough dressing with hot limewash, scour the whole of the woodwork, close house, and fill it with fumes of sulphur; then put in some fresh sweet soil and your fresh plants will probably prove quite healthy. We cannot tell if the soil sent contains any noxious insect, but we advise the exercise of due caution in the subsequent selection of soil.

TRANSPLANTING FRUIT TREES (W.).—Trees of the age and size you name are best moved as early in autumn as is safe, which is when the leaves are generally falling and part readily from the trees. The ground is warmer then than in spring, and the soil in better working order; besides, the weather is moist, so that the trees do not experience any great loss from evaporation. When planting is done in February or in early March the ground is cold and often wet, and March very often proves dry, in which case the trees have their vitality impaired through the loss consequent on evaporation, and make late and weak growths. With large and valuable trees every care should be taken in their removal, choosing the best time of year, which unquestionably is autumn, and that we strongly advise in your case. Young and small trees may safely be transplanted in spring, but all are best moved as soon after the leaves fall as practicable. We have had some unpleasant experience in moving large trees late in the season through a dry and windy March following. By autumn planting the soil gets well settled about the roots, and with the swelling buds in spring fresh roots are produced freely.

AMERICAN BLIGHT (Bray).—If you dissolve 4oz of soft-soap and half an ounce of soda in a gallon of boiling rain water, and while still hot stir very briskly in a pint of petroleum, and brush this well into the crevices of the bark of your Apple trees, it will destroy all the insects it reaches without injuring the trees when in a dormant state. We have known pure petroleum, that you call paraffin, do considerable damage to young fruit trees.

CONIFER SEED SOWING—ADIANTUMS POTTING, &c. (W. L.).—The best time to sow seeds of Conifers is in March or early April, choice kinds in pans in a cold frame to have air abundantly when the seedlings are up; the commoner varieties in open but sheltered positions out of doors. The best time to fill up bare places on lawn by sowing grass seeds is early in April in showery weather. Adiantums in greenhouse will require to be potted in March, be moderately supplied with water until they are growing freely, and then water requires to be given copiously, never allowing them to want for water without giving it, and at the same time the soil must not be made sodden by needless applications. The plants are benefited by a light syringing morning and evening, and should have shade from bright sun.

TENNIS COURT (S. F.).—As the ground is very poor you could not do better than pare off the turf as you propose, mixing manure liberally with the top spit of soil. If you could stir the ground two spits deep it would be an advantage. Do not, however, bring any bad soil to the surface, but merely loosen it, and enrich the surface soil. If the soil be heavy you may mix a 3in thickness of old mortar rubbish with the top spit, which would not only make it drier, but improve the texture of the grass. The ashes may be mixed with the bottom spit, which, by making it porous, would be advantageous in respect of keeping the ground drier and encouraging the deeper rooting of the grass. It will not answer to place a layer of ashes and other rough stuff near the surface with a view to raising and keeping it dry, for it would "burn" in summer, and frustrate the endeavour to form a close, velvety, elastic lawn. To insure a lawn fit to play upon by June by all means relay the turf if it be good. Whilst the turf is off be careful to remove from it the roots of such plants as Daisies, Plantain, &c. Be careful also to stir the ground to a uniform depth, so as to insure its settling evenly, a little extra pains in preparing the ground and laying the turf being well rewarded. Top-dress with well decayed manure as soon as the turf is laid, and beat it down. The earlier it is done after this the better. If the grass be thin sow with grass seeds early in April after the manure has been brushed in, raking over lightly after sowing, then rolling the whole well. The lawn mower should not be used early and set low so as to shave the lawn closely at first. It is better to let the grass from seed grow somewhat freely, and first "run it over" with a very sharp scythe.



The Proposed Veterinary Surgeons Bill.

A Bill is to be introduced into Parliament this Session named The Veterinary Surgeons Bill. A careful reading of it leads us to call it The Veterinary Surgeons Exploitation Bill, not that we wish to minimise the value of the services of a good vet.; on the contrary, we have many times suffered through inability (in a very wide and outlying district) to obtain veterinary advice at short notice. If an Act of this description will do anything, not in a small, but in a large way, to provide farmers with practical and scientific help when they want it, we entirely approve. But will there be any drawbacks? We fear there may be. The Act appears to be framed to prevent any person not registered as a veterinary surgeon prescribing medicines or doing surgical work for animals for remuneration. That means that a shepherd may be liable to a £20 fine for castrating a lamb, and that a man who is not registered as a vet., but has enjoyed a twenty or thirty years' practice as a castrator for foals, calves, or pigs, will be liable to a £20 fine for every case reported. Will caaponising be included in the same schedule?

Are farmers to be made to mix their own medicines for colic in horses, or for "downfall" in cows, and not leave it to the foreman or yardman? We know many good old shepherds to-day, although, alas! the number quickly grows less, who are expert in the doctoring of sheep. They are not registered as veterinary surgeons, but know more about the ailments

of sheep than most old-fashioned vets., let alone new ones. Under this Act a shepherd (who is, of course, working for pay), could not either mix a dose of castor oil for a lamb or pare a sheep's foot.

The movement appears to be aimed at the restriction of unregistered veterinary advice on the farm. That is as shortly as we can put it. There seems to be a vague idea that animals and human beings shall be put all together into one category, and that as in the case of doctors and surgeons, so it shall be with vets. Non-qualified men must not at their peril even ask the age of a pig or a cow; but they may ask the age of the baby.

We have always advocated the use of home remedies and treatment for farm animals, for we believe that constant attention to them will discover ailments before they become serious, and that the man who has been looking after cattle or sheep all his life, and has been picking up knowledge all the time, is fully qualified to prescribe for the animals under his charge, and mix the medicines as well. At the same time, we know that in serious cases, especially as regards horses, more expert advice may often be needed; and, as we said above, we have often been at a loss to find such really valuable advice.

We have known more than one registered but otherwise unqualified man in whom every confidence could be placed. They were not afraid of buckling to work or soiling their hands or arms, whereas we fear that many of these young men, fresh from college, would rather be giving orders than doing the hard work. It must be remembered that the care of animals almost entirely rests with the owner. He is the chief loser if anything goes wrong with them, therefore we think that he should be allowed to use the services of a "quack," even if it be to his own loss.

If a human life were involved there would be an inquest, and an unqualified practitioner, who had been mixed up in the case, would receive at least criticism. Manslaughter would immediately be mentioned; but it is different as regards animals, for you do not charge the butcher with cattle slaughter or cruelty every time he kills a bullock or a sheep.

We cannot, as farmers, see any wisdom in doing anything against the local, but useful, farriers and castrators, who have done good work in the past, and we hope will take a good deal of extinguishing. The idea of having a qualified vet. in almost every village, as suggested in the "Live Stock Journal," is, we think, almost equal to expecting the millennium to begin next week.

Work on the Home Farm.

Dull mild weather, with very little sunshine, has prevailed during the past week, and farm work has proceeded very briskly. The land has dried well, and where it was ploughed early and is now to be sown with barley or oats, a good seed bed will be readily obtained. We have seen some heavy land, which is very awkward to work, and it has a nice mould on the surface. Such land should be drilled at once before worse conditions may chance to arise.

Wheat has grown well lately, and very little damage from larks is visible. There is the wireworm pest to consider, however, and as last year's sheep pastures ran to seed somewhat, there is still a danger that the wireworm may play havoc. Rolling will soon be possible if fine weather holds, and no opportunity should be lost of setting the Cambridge roll to work.

Owing to the late harvest and rush of autumn work, some ploughing of "seeds" for spring corn was left over until the new year. The ploughing has been done, but as a considerable amount of green matter had to be put under, the ploughing has left matters anything but solid. Here, too, the Cambridge roll should be used assiduously. It will be very heavy work, and a light roll with two horses used first will make things easier for a heavier one with three horses. The heavy roll should cross the work of the light one, not follow it.

Lambs are becoming more noticeable, but we do not think they are so forward as in recent years. We find that, taking our district generally, very early fat lambs have not been aimed at, perhaps because Easter is late this year. We fancy that the people who can afford 1s. 6d. per lb for lamb will not wait until Easter if they can get it before.

The turnip folds are now in splendid condition, and the feeding sheep must be doing well. They certainly rest well. Ewes are healthy, and we have hardly heard abortion mentioned. The general lambing will commence after a few more days, so we may consider ourselves almost out of any danger from that source. The ewes are healthy, but a little low in condition from being so much on grass. They will benefit now by liberal allowance, but, of course, it must be strictly reasonable.

The spring fairs are beginning, and we find that horses, especially heavy ones, are as much sought after as ever, so there is every encouragement to continue breeding. A dealer told us that some breeders had been very hasty in throwing up the sponge, and that there would be a long fight ahead before motors knocked horses off the roads.

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Journal of Horticulture.

THURSDAY, FEBRUARY 27, 1908.

Potatoes.

THE Potato boom is dead—dead as a doornail, as Dickens would have put it; and the National Potato Society, which went with such a rush at first, finding that it could not live without the boom (?) quietly gave up the ghost and passed into oblivion. The memory of the great boom remains, and will remain; for in the years to come gardeners that are yet unborn will be told by their elders of the epoch-making period in Potato history when tubers of sensational varieties were worth more than their weight in gold. To-day we see only the absurdity of it, when we consider the discarded Northern Star, which even cottagers will hardly have at a gift for planting, and realise that only a few years ago many growers were clamouring for this variety, and were outbidding each other in order to get possession of it. But there, as I said before, the boom is dead, and will never be resurrected. Peace to its ashes; let us get on to something connected with Potatoes that is of interest at the moment.

It must be disappointing to the raisers of Northern Star, Eldorado, and others of the boom era that these varieties, instead of upholding their early reputation, have failed so lamentably in general cultivation. Why is it? Experts say—and reasonably so—that it is due to the express methods of propagation that were adopted at the outset to increase the stocks. In short, the Potatoes were propagated to death in their early infancy. On the face of it, it seems a pity that good varieties—assuming they were good when they left the raiser—should be sacrificed at the shrine of avarice. But there are men who believe that Eldorado is not played out, but that it will yet prove to be a valuable variety for general culture when the ruined stocks of the boom period have ceased to exist, and we have nothing but Eldorados grown from healthy tubers in a reasonable manner. The unfortunate thing is that there is now a want of

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confidence in this and other varieties, and it is difficult to persuade people to grow them when they are doubtful as to the results. But whether the sensations of the boom era ever start again or not, Potatoes as a crop are just as important and essential as ever they were, and at the moment preparations are being made once more for planting.

What shall we plant; where shall we get the seed from? These are questions which come uppermost in the mind, and experiences, some of them bitter, are responsible for the anxiety. So far as the first question is concerned, there is no cause for trouble, for in spite of certain failures and disappointments there are plenty of good varieties in the market, and quite a host to select from. People thought in Eldorado and Stars they would have perfection in Potatoes, but in this vegetable, as in human nature, it is too much to expect or hope for; so we must allow for shortcomings, and be satisfied that Potatoes of to-day are a little above rather than below the varieties of the past.

But where to get the seed from; that is another matter altogether, and one that should be seriously considered. Change has always been held to be good, but never was it so important as it is now, or so really essential. Until recent years we were content to get a change of seed occasionally, but often only went to the next parish for it, and in the meantime we planted seed tubers from our own stocks, and got good results. We cannot do that now, and why not? That is the mystery which, so far as I am aware, remains unsolved. Let me explain. The seed tubers from last year's crop (perhaps fresh seed then from Scotland) looks sound and good when it is planted, but when the haulm gets through the ground you notice there is something wrong. Here is a plant strong and vigorous, but there a specimen with a thin dwindling stalk that is evidently wanting in vitality. It looks sickly and stunted, the leaves are crimped and curled at the edges, and the plant makes no headway. All through the growing season it pines and struggles, but the tops die off early, and when you come to lift the root you perhaps find a few young tubers as big as marbles clustering round the root stalk; but there is the old seed Potato dry, hard, and undecayed. If there are only a few of these unsatisfactory plants the loss is not great, but if the largest proportion are so affected matters are serious, and last year on account of this trouble there were acres of Potatoes in the country that never paid for the labour of lifting.

Some people call this the "leaf-curl" disease; others give it another name; and others again give it no name at all. But it is in view of the trouble that I ask where shall we get seed from. I have heard numerous explanations as to the cause of this peculiar behaviour of home-saved seed Potatoes, but they are more or less contradictory, and a few of the leading experts confess themselves baffled. One thing, however, may be said, namely, that it is now so prevalent that one necessarily takes risk of failure through planting home-saved sets, particularly in the case of early varieties.

In my experience I have had none of this trouble with Scotch-grown seed, and the natural conclusion is, plant seed from the North. But wait; for Ireland has claims. I have before me a report of some Potato trials conducted in Surrey last year by that veteran grower, Mr. Alexander Dean, V.M.H. (whose familiar initials "A. D." do not appear so often in the Press now as we should like to see them); and the results were decidedly in favour of Irish seed. Is it that seed Potatoes grown in the cooler and moister climates do not develop the peculiar disease I have referred to, if disease it really be? or is it the fact that the tubers are lifted before they are ripe that explains their immunity and natural vigour? I am acquainted with a man now who grows over twenty acres of Epicure for the early market. Lifting commences in July, and continues through August, and when the work is in operation, tubers (unripe, of course) are selected and put in boxes for planting the following season. It is good to see these Potatoes when they go into the ground, furnished with stiff bristling sprouts, and "curl" disease is a thing practically unknown on the farm. Further, the grower, who knows his business and is making money at it, contends that the lifting of seed tubers before they are ripe, and boxing them so as to have the sets sprouted at planting time, is equal to a change of seed. Reader, do not take this as conclusive, but experiment for yourself. When lifting early Potatoes in the coming summer for use, pick out some unripe tubers for seed; leave others in the ground till the autumn; plant them side by side the following year, and carefully note the result. This way of proving a point, which is easy enough, is better than taking evidence from anyone else as being conclusive.

All the same, this failure of home-raised sets in a general way is real, and it has been observed by every grower in the southern and western parts of England, as well as the Midlands, and we want if possible to get to know the reason. I have discussed the matter with both practical and scientific men, and have heard many theories advanced, but they lack a ring of conclusiveness. The matter is serious, and of importance to the private gardener, but infinitely more so to the cottager and allotment holder, who relies on the Potatoes he grows to supply

his family with an essential food commodity, and thus save his pocket. It is easy to say, plant Scotch or Irish Potatoes and avoid the trouble; but the cottager has not always got the money to spend on fresh seed every year, and in cases he has no other course but to plant from his own stock. As matters stand now he plants with doubts in his mind, and if the crop turns out right he is thankful, but when he sees that stunted growth, and observes the crimped curled leaves, no wonder that he ruffles his hair with horny hands, and cogitates within his own mind as to what is the matter with those "plaguey taters." How can you expect him to solve the mystery when experts and scientists are baffled?—H.

In the horticultural world, the breathless race for novelty and change continues without intermission. "Variety is life," says the philosopher, and any well-considered effort to appease the inherent variety-hunger of mankind is deserving of unqualified appreciation and approval. With regard to garden novelties, however, there are several disparaging factors

Degenerative Novelties. With which they may have to contend, each conducive, more or less, to decline in public favour early in their career. Exceptional, indeed, is the new plant that issues scatheless from amidst these besetting obstacles, and can be handed down to posterity as of standard utility, not unduly prone to incurable, malignant diseases. One need not be grey-headed to testify to a vast procession of plant creations, which, like meteors, have flashed across the horticultural firmament, and almost immediately vanished into oblivion, or, at best, sunk to a position of decided mediocrity. Many hybrids and new varieties have attained their ephemeral eminence through "puffs" and extensive advertisement, which their actual merits have failed to warrant. The supplanting of such as these is, of course, a foregone conclusion. Anything which is unable to stand the test falls by its own weight. The great ban of the novelty is, however, defective constitution. It may be all that can be desired for a season or two, and then comes the collapse. The worm gnawing at the vitals has done its deadly work, and the plant must give place to others, probably equally short lived.

Exigencies of cultivation may sometimes hasten the decline. Take the case of the Chrysanthemum. In a number of private gardens the grower of exhibition blooms is forced to take cuttings from the stools of his overfed and highly pressed plants of the previous season. A few years of this treatment is bound to undermine the most robust constitution. The end is not obscure; a very short period is sufficient to seal the doom of the strongest novelty, and to enforce its relegation to the ranks of the bush plants or the rubbish heap. But, if this were the sole difficulty it would present no insurmountable features. Even the more natural system of cultivation for the selection of cuttings, in vogue in various nursery establishments, can only ward off for a time the discarding hand.

What, then, is the fundamental evil which assails nearly all new forms of plant species? I am convinced that it is the functional disarrangement caused by the unnatural results of hybridisation. Nature's ways, unfortunately, run counter to those of acknowledged utility and public taste. Double and semi-double flowers are a fatal defect in the economy of plant life, and they cannot be produced, generation after generation, without a serious disturbance of functional processes, which must inevitably lead to disaster.

Now, as to fruits. A large quantity of pulp and but little seed is, as a rule, the goal to be aimed at, and, indeed, it is difficult to see how it can be otherwise. Nevertheless, if we contemplate a direct flout to Nature, this mode of procedure can hardly be improved upon. Those who are concerned in the welfare of future generations of garden fruits must deprecate the fact that so much importance is attached to mere size. Generally speaking, size is accompanied by poor flavour and bad keeping characteristics. Yet it is from these most pronounced abnormalities in the matter of size that the hybridiser instils propensities into his new varieties. Of course, he may succeed in obtaining flavour from other sources, but my point is that enlarged pulp usually spells impaired constitution, and constant breeding from plants bearing large fruits is a short cut to disease and decay.

I do not wish to appear unduly pessimistic, but, to my mind, the danger is one to which the horticulturist cannot be too fully aroused.—S.

Fruit in British Columbia.

The fruit lands of British Columbia are of large extent, and include all the fertile valleys from the Rocky Mountains to the Pacific Coast, and from the International Boundary north to Cariboo. Apples, Pears, Cherries, Plums, and small fruits grow over all the area mentioned. Peaches, Grapes, Nectarines, and other delicate fruits grow to perfection in the open in the southern districts. The principal districts in which fruit is grown on a large scale are:—Vancouver Island and adjacent islands, New Westminster, Okanagan, Lillooet, Yale, and Kootenay.

**Lælio-cattleya × Queen Alexandra.**

The great feature of excellence in this compound hybrid is its massively expansive labellum, which is most richly coloured with intense crimson-purple or ruby-purple, with an orange-coloured disc, behind which there are some reddish markings extending to the base; but the edges of the lip, especially in front, are lilac-lavender in hue, the whole texture being velvety. The sepals and petals are deep mauve, and of the form shown in the accompanying illustration from a drawing by our artist, Mr. George Shayler. Messrs. James Veitch and Sons, Limited, of the Royal Exotic Nursery, King's Road, Chelsea, staged the

of the receptacle, so it is advisable to use rather deep pots for this exquisite genus. After providing new soil, water somewhat sparingly for a time, till the growth is more advanced, when water may be given with greater freedom.

Although not a large group of orchids they are, nevertheless, distributed over a wide area, therefore require slightly different treatment when brought under cultivation. *H. carnea* and *H. Susanna* should be arranged in a shady part of the warmest division, while the scarlet *H. militaris* and *H. rhodocheila* thrive best in an intermediate temperature. All must be out of the way of drip from the roof glass, and passed by when syringing round, or the delicate foliage soon becomes disfigured.

Bonatea.

Until recently there was only one representative of *Bonatea* in cultivation, viz., *B. speciosa*, a somewhat rare and difficult-to-cultivate plant from South Africa. Two others have been added—*B. antennifera* and *B. Uganda*, which are sometimes referred to under *Habenaria*. Both come from Uganda, and require warm-house treatment; while *B. speciosa* should be

**Lælio-cattleya × Queen Alexandra.**

plant bearing the flower from which the drawing was made at the Royal Horticultural Society's meeting on February 11, 1902. On that occasion the Orchid Committee awarded it a first class certificate. The hybrid comes from the parentage *L.-c.* × *bella*, × *Trianae*.

Habenarias.

These will soon awaken from their slumber, and no time should be lost in examining the tubers, and repotting them in a mixture of fibrous loam, peat, and sphagnum in equal parts, with a sprinkling of finely-broken crocks to maintain the mixture in a free and porous condition. It is much better to repot before the roots commence to run, or damage to the tubers might accrue if left till later, as careful handling of the plants is extremely necessary at all times. *Habenarias* are deciduous and tuberous-rooted; and the latter always make for the bottom

grown among the *Odontoglossums*. They may be potted and treated in a similar manner as advised for *Habenarias*, but they are much stronger and larger growing plants.

Subjects for under the Stages.

A few months ago we advised the planting of *Epidendrums* against pillars and in other suitable positions, but where this idea is not carried out, *Ficus repens* can be placed at the base of walls, which will soon be covered if kept moist by occasional syringing. There is often some vacant space underneath the stages, which could be made quite attractive by the judicious planting of ferns, *Begonias*, *Fittonias*, *Pilea muscosa*, *Panicum*, and similar subjects. Such work ought to be taken in hand immediately, to get it done before we are busy potting and engaged in other multifarious duties, which gradually increase as the season advances.—T. ANSTISS.

The Stelvio.

The highest carriage pass probably in the world, and certainly in Europe, over 9,000ft, known in Germany as the Stillser Yoch, and in England and Italy as the Stelvio, is a masterpiece of Nature and art combined. It can only be traversed in the summer months, as it is embedded in snow of an immense depth from September to June, while any time during the height of the summer snow may have to be encountered, and even in July it is no uncommon thing to find it six feet deep by the roadside. For variety of scenery, vegetation, and climate within so short a space of time and distance, as it can be negotiated on the modern cycle, I apprehend it is unrivalled, though the route from the plains of India to Darjeeling in the Himalayas (if cyclable) would be superior probably in the grandeur of its views. The distance from Prad (2,950ft) at the foot of the Stelvio on the Austrian side to Tirano (1,475ft) on the brink of the plains of Italy is fifty-three miles in two unequal divisions, the ascension from the greater height of close on 3,000ft being seventeen and a half miles, compared with the descent of thirty-five and a half miles to the lower level. Seeing that this descent can be continued, the further one gets into Italy, and that the road surface is really excellent, it must be regarded as one of the finest cycle runs in existence. To insure safety, however, his brakes must be in first-rate order, wondrous zig-zags, with a gradient involving 4,685ft in eight miles, being encountered; while if he plays the game properly he has had the more than arduous pull (or rather push) for the considerable space of miles before reaching the summit and starting point for his run down. That it can be done the writer of these notes is not only a case in point, but the witness of a far more meritorious performance, viz., that of a mere child in the person of a girl of sixteen, the Stelvio being moreover but a portion of a far longer "run" of some 360 miles in twelve days, in course of which six passes were traversed.

Dealing with our subject from the floral and landscape point of view, and our bicycle merely as an adjunct to enjoy such, we must lightly sketch the fore and after portions, with the Stelvio route as the *pièce de resistance* in the centre. Our start, then, commenced at Füssen, a beautiful spot on the river Leck in the Bavarian Highlands, and comparatively little known to English tourists. It lies but a few miles from the celebrated castles of Neuschwanstein and Hohenschwangau, the former of which was built by poor mad Ludwig. Perched high on the top of a from three sides inaccessible rock, with its view spanning the space across the plains to his capital, Munich, here it was that this accomplished but eccentric Prince entertained his ideal Wagner, and "menschen-scheu" shut himself up with his legends and music, surrounded by walls decorated from attic to basement with representations from the great master's fairy operas. To the naturalist in flowers and insects, combined as a beauty spot, Füssen can hardly be beaten. As for berries, they are endless. You begin with the modest little wild Strawberry broadcast and throughout the woods from June to August. As July comes in the neat shrubby six inch to foot high Heidelbeeren plant will give you a deliciously cool and very juicy "plat," with its blue-black, round, Currant-shaped fruit. Hardly are these over when the brilliant red Preiselbeeren will be found; to be followed in its turn by a plenteous supply of Raspberries, and by Blackberries of a wondrous size and depth of colour. Here, too, on moist paths in the woods we met (but rarely) the showy black salamander picked out with orange spots. These queer little reptiles lack discretion to a remarkable degree. They made no attempt to escape, indeed they give one the idea of having lost their way, and being in a kind of daze, staring up at you in an aimless sort of manner, most unlike their kinemen, the lizards, which glide away helter skelter at the first sign of danger.

From Füssen to Landeck in the Tyrol you pass through a finely wooded country chiefly of Pine and Beech, and over a small pass, picturesquely named the Fern, going through *en route* the important little burg of Nassereit, with its sturdy appearance and bustle of diligences. This spot is memorable to us from the delicious fruit on sale, and very grateful during the heat and toil of a long day's ride. Never, I think, have we done better justice to Peaches, Pears, and Apricots. They were hardly, I think, procured locally, but probably came from a warmer part of the Tyrol. Alas! for the beautiful Bavarian Highlands in general, and the hilly and richly verdured regions with Reutte or Lermoos as a centre in particular, how terribly wet they can be on occasion. I have frequently known deluges of rain of really tropical force and quantity continue for five and six days at a time with hardly a break. Doubtless this helps the vegetation, but it causes, too, unexpected freshets over the roads and break-downs of bridges. We encountered one such the year previous between Garmisch and Ehrwald, just over the Austrian boundary. Leaving picturesque Landeck on the Inn with its ancient Schloss commanding the time-worn town, we cross the shallow Finstermünz pass *en route* to Prad, where our giant task awaits us, for we have now to cover

close on twenty miles every foot up, nearly five of which are at the tremendous gradient of 300ft per mile. Almost immediately one sees the village of Stelvio (which gives its name to the whole route) lying off on the mountain to our right. The scenery of this first portion is extremely fine, the narrow valley barely affording space enough for both road and river. At Gomogoi, a few miles further up, we preferred to diverge to our left to visit the picturesque Sulden tal. Up to St. Gertrude, which was our climax at the end of this valley, we enjoyed grand forests of Pine, emerging finally on the wondrous green meads of this little alpine dorf.

The flora around is of rare richness, including masses of Alpenrosen, with the height-loving Apollo butterfly floating on its gauzy wings and alighting ever and anon to sip the nectar. Ever upward, and getting on for half way to our goal, we reach inimitable Trafoi, a spot, I suppose once seen, never forgotten. It lies at the very foot of the noble Ortler, Austria's highest alp (12,800ft.). Sojourners will visit from here the "Three Holy Springs," figures of Christ, Mary, and St. John, from whose breasts flow the icy "holy water." The matchless Madetsch glacier lies just above. From Trafoi to the summit but one word can be used for the prospect—sublime! The last five miles the road is formed through the tall slate in long windings. Seeing that we did the whole piece from Sulden to the Stelvio Pass in one day, the performance on the part of my little companion was a rarely creditable one, and I venture to think created something of a record for so young a cyclist of her sex.

Our recollections of our visit to the summit are vivid, neither have I yet recovered from my surprise at being at this great world's end height charged but two kroner (1s. 8d.) for bed and attendance! The following morning being superb, as a prelude to the day's run, we paddled in the stream running on the Eben glacier, a few hundred feet above, then mounted our steeds and crossing the Austrian boundary into Italy, a mile below, free-wheeled with the utmost regard to our brakes sheer down from 9,055ft to the Baths of Bormio, 4,020ft. The strain on the hands to secure a tight brake down this terrific gradient and safely negotiate the zig-zags, which turn right back on each other, is tremendous; great care, moreover, being necessitated in going through the dark avalanche galleries met with in this portion. At Bormio, as an antidote to our ice-foot bath of sunrise, we thought it necessary to indulge in the natural Turkish bath of this quaint place. Being somewhat out of season we had the delightful little hot swimming bath all to ourselves, and found it difficult to bear ourselves away from this wonderful hot spring water of 95deg, in which we had revelled for close on an hour.

Our continued run took us right down to the level of 1,475ft, and the ancient town of Tirano, with its sub-tropical vegetation, its vine-clad hills, arched colonades, and warm-tinted houses, pink, yellow, or blue. Here, again, and this time, after a longer fast, we were in a land, if not flowing with milk and honey, yet of very luscious fruit and kindly wine, good to the eye and sweet to the taste. Neither as we left this, our lowest altitude in our twelve days' tour, shall we forget a certain hot corner where we did woeful slaughter among the most marvellous display of butterflies I have ever seen outside the tropics. In this particular coign of vantage it would appear were collected these winged insects of every hue and kind. We caught at least five new sorts that in our wildest dreams we had never contemplated. Even the heat, which was excessive, we all but forgot in our excitement. Here, then, we found black admirals of two species, the blue admiral, two different tiger moths, the lace-edged transemantel, and many other kinds of greater or less excellence.

For several miles up this fringe of Switzerland the landscape remains singularly Italian, the peasants will be seen with their gay coloured kerchiefs and frocks, and Walnut and Chestnut trees about on the roadside. Very pleasing is the small watering town of Le Prese on the Lago di Poschiavo, between Tirano and the Bernina Pass, where, again, you have a fine contrast in vegetation, or absence of it, at different altitudes, for at the Hospice on this famous route into the Engadine you have again ascended no less than 6,100ft. This arduous piece of twenty-two miles we also did without a night *en route*, and well earned the excellent *table d'hôte* served up at the top. The Bernina Hospice, 7,575ft, is in its way in a region more barren than the Stelvio. In configuration it is flatter and more exposed, owing to a stretch of level ground; whereas on the Stelvio you have no sooner arrived at the top after the arduous climb up than down you go again, your promenade *en haute* being like a fisherman's walk, "three steps and overboard." As cyclists, we enjoyed a grand run down from this second great height to Pontrasina, with a superb view of the Morteratsch glacier, thence traversing a goodly portion of the exquisite Engadine, which we left by the Flüela route for Granbünden and Davos. This pass, close on 8,000ft, higher even than the Bernina, struck us as being far the most desolate of the three: parts, indeed, it has even a forbidding aspect. Seen in bad weather, it is grand, weird, and terrible. One has at this summit a sense of utter loneliness, which the two little sister

lakelets on either side the road, the one with green white glacier water, the other with clear spring water, fails to dispel. There is merely an indifferent inn, moreover, to greet you at the summit. Nevertheless, in its season the flora on the Flüela Pass is a peculiarly rich one. Rhododendrons grow galore on the southern slopes, while Alpine Primulas and Anemones, with various of the Saxifrage tribe, are very abundant.

From Davos, beautiful alike in summer as in winter, we made a little return side excursion over a small pass to Arosa, which is nearly a thousand feet higher, viz., at an altitude of 6,000ft. This picturesque village, with an architecture all its own, is a most lovely spot. It is comparatively little known to the English element. Most of the *châlet pensions* are placed in a bower of woodland. The forests all around are noble in dimension and stature. I know no place better suited alike to the searcher of a real rest cure, as to the climber or lover of Nature in its grandest form. As for flowers, it is a paradise, both on the mountain slopes and in the rich sheltered woods. Edelweiss, moreover, can be obtained remarkably easily in the immediate neighbourhood.

Our tour ended at another *terra incognita*, in the guise of pretty little Heiden, perched high up above the lake of Constance in the Canton of Appenzell, and enjoying a celebrity of its own, its whey cure. Leaving Davos, we had, of course, the famous run to Klosters, all winter long the happy hunting ground of luge and bobsleigh, after which, with the gradient ever with us, we gradually reached the alluvial plain of the Rhine, and the lake of Constance.—J. A. CARNEGIE-CHEALES, Lugano.

Notices of Books.

BRITISH RAINFALL, 1906, Edward Stanford, 12, 13, and 14, Long Acre, London, W.C. Price 10s.

This very concise work by Mr. Hugh Robert Mill treats "on the distribution of rain in space and time over the British Isles during the year 1906, as recorded by more than 4,000 observers in Great Britain and Ireland, and discussed with articles upon various branches of rainfall work." There is a frontispiece in colours, showing the rainfall of 1906 to the average of 1870-99, which is very masterly and elucidative of the rainfall in the British Islands.

The work contains a singularly instructive account of "The Christmas Snowstorm of 1906," and this is shown by maps as prevailing in the United Kingdom, both as regards depths of snow, December 25 and December 26, and hour when snow began on those dates, the text supplying the explanatory matter.

Wind influence on rain gauges is treated historically and shown by diagrams, with the nature of wind disturbance, methods of correcting readings at wind-swept stations, and protection contrivances.

Records of evaporation and percolation are given, the evaporation for 1906 (19.03in), being greater than in any previous year, though 1893, 1899, and 1901 all came within an inch of it. This is shown by both map and tables.

Next comes the duration of rainfall in 1906, the tables being replete, as also are those representative records of daily rainfall in 1906. The number of complete rainfall records is given, those in 1906 being 4,267.

Viewed broadly, the rainfall of the British Isles for 1906 was neither above nor below the average of the thirty years, 1870-99. Scotland, as a whole year, was wet, the excess being eight per cent. over the thirty years' average, which for that part of Great Britain coincided with the average of the ten years, 1890-99. For Ireland the year was dry, the deficiency amounting to six per cent. of the thirty years' average, or five per cent. of the ten years' average, 1890-1899. For England and Wales there was a deficiency of one per cent. on the thirty years' average, but an excess of five per cent. on the much smaller average rainfall which prevailed for the ten years, 1890-1899. The integral parts of the British Isles, therefore, form a contrasted series, with England and Wales in the centre, rejoicing in a rainfall, which for the country as a whole was the average of thirty years. Scotland in the north with a very pronounced excess, and Ireland on the west with a scarcely less pronounced deficiency. Comparison of the rainfall of the year 1906, with the averages of the periods 1890-1899 and 1870-99, are given for England and Wales, Scotland and Ireland, and then a general table of total rainfall in 1906 at more than 4,000 stations in the British Isles follows.

In the work, which signifies a vast amount of labour in compiling of records and condensing into tabular form, not to mention the maps and diagrams, there appears most, if not everything, worth knowing about British rainfall, not least being the rules for securing uniformity and recording rainfall. We, therefore, commend "British Rainfall" to all interested in the most important of all elements essential to soil cultivation, and life of all living things on the face of the earth.—A.

NOTES & NOTICES

Portsmouth Fruiterers.

The members of Portsmouth Fruiterers' Benevolent Society held a very successful dinner at the Masonic Hall, Lake Road, Portsmouth.

Mrs. Ryland's Bequest.

Under the will of the late Mrs. Rylands, widow of the late Mr. John Rylands, the great Manchester merchant, the Gardeners' Royal Benevolent Institution benefits to the extent of £3,000.

The United Horticultural Benefit and Provident Society

The annual meeting of the above society will be held at the Royal Horticultural Society's Hall, Vincent Square, Westminster, on Monday, March 9, at 8 p.m. It is to be hoped that a large turn-out of members will appear, and so encourage the committee by their presence, or stimulate them by suggestions. The chairman of committee, Mr. Charles H. Curtis, will preside.

"The Usual Fortnightly."

It would appear that so much are we the creatures of habit, we proceed in a regular round or series of actions, often regardless of the fact that nothing is exempt from change. Quite a large number of folks were disagreeably surprised to discover that "the usual fortnightly" show and meeting of the Royal Horticultural Society, which in the ordinary course would have fallen on Tuesday last, was not in the fixtures card. The exhibition is next week, March 3rd, which makes an interval of three weeks from the last show. One man whom we met in the City had been to the hall with a small exhibit! He had come from Tunbridge Wells.

State Market Gardens.

Sir J. G. Ward, the Premier of New Zealand, reports the "Eastern Morning News," is thinking of a further advance in State Socialism. He contemplates "State market gardens," with a view to depriving the Chinese of the monopoly in vegetable growing that they have enjoyed for many years in New Zealand, as well as in neighbouring Australia. Under the late Mr. Seddon New Zealand started State coal mines, a State insurance department, and other State undertakings usually left to individualistic enterprise. In setting out to compete with the Chinese in the production of Carrots, Cabbages, and Cauliflowers, the New Zealand Government will be heavily handicapped. Nothing can exceed the patience, the untiring industry, and the plodding perseverance of the Chinese in the cultivation of their market gardens. White labour employed by the State in the same industry is not likely to be equally energetic and successful. It was Mr. Gladstone who said that the Chinese in the colonies were "hated more for their virtues than their vices."

Apple Growing Experiments.

At a general meeting of the Herefordshire Association of Fruit Growers and Horticulturists, according to several Birmingham newspapers, Mr. H. P. Bulmer said that, seeing the extreme fertility of some of the French varieties, his firm were experimenting with an acre of cider varieties on bush trees, not cultivating the ground between the rows, but mowing the herbage two or three times a year and mulching round the sticks. By that means it was considered they would save cost of hoeing and propping overweighted branches, and get a crop in about three years instead of waiting ten or fifteen years, as in the case of standards. Mr. Getting (Glewstone Plantations) believed the fruit would be jucier, too. The labour bill would be considerably less, which was desirable in the case of successive failure of crop. Mr. Barker (director of the National Fruit and Cider Institute, Bristol), who detailed many experiments being made on the institute plantations, said he had not tried Mr. Bulmer's experiment, but he was growing some on cordons. As to filling up old orchards, Mr. Ray said he had met with success by turning over the soil, letting it get frosted, and then ramming the young tree in well.

Englishman for Natal.

Mr. G. Charlton, for five and a half years general foreman in Skelton Castle Gardens, Yorkshire, leaves England in April to take charge of the Kelvinside Fruit Farm, Dundee, Natal.

Damage at Sandringham.

The gale of last Saturday wrought havoc to the trees on the King's estate at Sandringham. Of twenty Lime trees forming an avenue there, fourteen were levelled, lying with absolute regularity in the same direction from the line in which they stood. Other trees were also up-rooted and fell, doing damage to the surroundings.

Rev. J. Bernard Hall.

The Rev. J. Bernard Hall, curate of Corbridge, has been elected as corresponding member of the Royal Horticultural Society of London. At the suggestion of the Editor of the *Journal of Horticulture*, a lecture drawn up by him, and adapted for reading, with a set of slides of Apples (coloured) and Apple trees was offered to, and has been taken over by the Royal Horticultural Society, and will be distributed throughout England to the various gardeners' societies affiliated to the R.H.S.

Mr. T. G. Tillie.

The well-known seed firm of Messrs. Tillie and Turner, Melbourne Place, Edinburgh, has been dissolved. This firm was constituted in 1882, and Mr. Turner now retires from it, while the business of the firm will be carried on by Mr. Thos. G. Tillie, who is well known to Scottish horticulturists north and south. Mr. Tillie first entered the business in Melbourne Place in 1877. Prior to that time he had been in the employment of Messrs. Alexander Cross and Sons.

Exhibition of Colonial-grown Fruit and Vegetables.

The president and council of the Royal Horticultural Society have again arranged to hold an exhibition of Colonial-grown fruit and vegetables at their hall in Vincent Square, Westminster, on March the 5th and 6th next. Sir Somerset French, K.C.M.G., the newly-appointed agent-general for the Cape Colony, and previously Postmaster-General for the Cape, has very kindly consented to perform the opening ceremony, which will take place at 12.30 on March the 5th. Entries for many interesting exhibits have been received. Sir Somerset French is also to show a large collection of paintings of Cape scenery executed by Cape artists, which were given to him by the staff of the post office when he resigned the Postmaster-Generalship at the end of last year. These paintings have not been exhibited in this country before. C. Du P. Chiappini, Esq., the Trade Commissioner for the Cape, is to give a lecture at 3 p.m. on March the 5th, in the lecture room at the Hall, on "Cape Colony and its Commercial Fruit Resources."

Annual Market Dinner. N.C.S.

The fourth annual dinner held under the auspices of the Market Show Committee of the National Chrysanthemum Society took place on Monday, February 24, at the Popular Café, Piccadilly, under the presidency of Mr. Robert Ballantine. Messrs. T. Bevan, E. F. Hawes, C. H. Curtis, F. W. Ladds, G. J. Ingram, D. Ingamells, G. Prickett, P. F. Bunyard, W. Howe, J. Tulley, R. Weir, J. McKerchar, R. A. Witty, and other members and friends were present. The toast list was a short one, the items being "The King and Queen and Royal Family," "His Grace the Duke of Bedford" (who lends the foreign flower market at Covent Garden for the market show), and the "National Chrysanthemum Society," and to the latter Mr. Thos. Bevan responded briefly. Other toasts were "The Chairman" and "Mr. Ingamells." The latter has ever been the moving spirit in the market show movement. Mr. McKerchar also proposed the "Gardening Charities," to which Mr. Ingram responded. All the speeches were commendably brief. The evening was devoted to music rather than to speech-making, and in this respect many committees might follow the example here set. Those who contributed to the evening's enjoyment were the Misses N. Beare and Such, and Messrs. H. W. Porter, Walter Bamforth, Lawrence Harewood, Wilfred Stracy, Walter Fullerton, and Harry Briden.

No Liverpool Show.

We are informed by Mr. Harold Sadler, 7, Victoria Street, Liverpool, that it has been decided not to hold a spring show at Liverpool this year.

Canterbury and Kent Rose Society.

The thirtieth annual show will be held on Tuesday, June 30. There will be a challenge cup, value nine guineas, open to all nurserymen.—C. C. WILLIAMSON, Hon. Secretary.

"Lawns."

Under the title of "Lawns" Messrs. Sutton and Sons, Reading, have issued an instructive illustrated brochure dealing with garden lawns, tennis lawns, bowling greens, croquet grounds, putting greens, and cricket grounds. The object in view is to suggest the best and least expensive method of producing a fine, dense, elastic sward, and the means by which the grass may be maintained in good condition. The illustrations throughout are very effective, whilst none are more useful than those of implements necessary for keeping lawns in good condition. The volume is published at 1s., and will be found of great service to all who are interested in lawns.

American Seed Trade Association.

The executive committee met at the Auditorium Annex, Chicago, on January 1, with a full attendance. Detroit was selected as the meeting place for the convention, June 23-25. Headquarters have not yet been selected. The following resolutions were adopted: "The executive committee of the American Seed Trade Association recommends that its members still further emphasise and publish its disclaimer by having it printed on all stationery, including letter-heads, bill heads, quotation sheets, acceptances, labels, and packages, and to disseminate same to all merchant customers possible, and to supply merchants with disclaimer cards to be hung in a conspicuous place in the sales-room." Cards will be furnished by the secretary free to members on request, and to others at ten cents per copy, post paid.—C. E. KENDEL, secretary, 2010, Ontario Street, Cleveland, O.

Water for London Gardens.

At a recent meeting of the Metropolitan Water Board (Sir Melvill Beachcroft presiding), the Appeal and Assessment Committee submitted a report with regard to the charges for cattle troughs, fountains, &c., and gardens. In the case of gardens it was recommended: "That, whilst reserving power to charge by meter or on area, the following scale be adopted for garden supplies where the consumption of water and the size of the garden are not, in the opinion of the board, exceptional, viz., rateable value not exceeding £50 per annum, 10s. per season; £100 per annum, 15s. per season; and £200 per annum, 20s. per season. Where the premises exceed £200 rateable value, or a sprinkler is used, the garden supply to be separately afforded, by meter, at the trade scale, but without imposing a minimum rent." The recommendation was agreed to.—("Daily Telegraph.")

"Flora Capensis."

Continued progress is being made with this work, which is edited by Sir W. T. Thiselton-Dyer on behalf of the South African colonies. Since the notice in the "Kew Bulletin" for 1906, p. 186, two more parts (iii. and iv.) of vol. iv., sect. 1, have been issued. In the earlier of the two, Mr. N. E. Brown has completed the account of the Ericaceae, in the later he has commenced an account of the Asclepiadaceae. The other orders dealt with in part iii. are the Plumbaginaceae, Primulaceae, Myrsinaceae, Sapotaceae, Ebenaceae, and the Oleaceae partly. In part iv. the Oleaceae are completed, the Salvadoraceae and the Apocynaceae are dealt with, and, as stated above, the Asclepiadaceae are begun. The Ebenaceae have been described by Mr. W. P. Hiern, the Plumbaginaceae and Salvadoraceae by Mr. C. H. Wright, and the Apocynaceae by Dr. O. Stapf. For the Primulaceae, Myrsinaceae, Sapotaceae, and Oleaceae the editor has been able to make use of the manuscript accounts prepared by the late Professor W. H. Harvey; the additions rendered necessary owing to the communication of further material from South Africa since Professor Harvey's death have been supplied by Mr. C. H. Wright.—("Kew Bulletin.")

Bear Place, Twyford.

The county of Berks can boast of many fine gardens, but one of the most interesting and most pleasantly situated is Bear Place, the country seat of H. F. Nicholl, Esq. Since Mr. Nicholl bought the estate in 1894, many improvements and alterations have been made, which have been ably carried out by Mr. Withers, the head gardener, and his staff.

The mansion is situated on a small hill, with a large wood on the north side, which winds round to the east, and extends nearly to the Bath Road. Through this portion runs the main or front drive, the trees of which present some of the most lovely shades and tints, especially just before the fall of the leaf. From the south front a fine view is obtained over the neighbouring country, and immediately beyond the terraces and flower beds are two large meadows, studded with grand specimen Oaks, Elms, firs, and other trees.

The lawns are extensive, and here we find two magnificent examples of the Horse Chestnut, large pieces of *Arbutus Unedo* (the Strawberry-tree), variegated Hollies, and healthy young Cedars, which have made considerable progress during the last six years. Flowering shrubs also make a show in their season, one of the best being *Buddlea variabilis Veitchiana*, which was in full bloom at the time of my visit in August. Lilacs in variety, the free-flowering *Clerodendron trichotomum*, *Tamarix hispida*, and *Viburnum Sieboldi*, are only a few of many that adorn the gardens at Bear Place.

The Roses embrace all that are useful for cutting, and many of the decorative rambling section. Carnations are another special feature, and they include some of the best varieties, both for pots and for the open border. Two of the best growing outdoors, and perfectly at home, were Mrs. Eric Hambro and Audrey Campbell, a fine yellow. Both are free flowering, and each possesses a strong constitution. Violets are a specialty, and their cultural requirements are fully understood; in fact, blooms are gathered nearly the whole year round. The doubles are Swanley White, Marie Louise, and Lady Colin Campbell; and singles are represented by Princess of Wales, which is grown exclusively in the open ground, but the double varieties are utilised for pots and in frames. Runners are taken directly the plants finish flowering in the spring, and are then planted out in a well-manured loamy soil, where it is partially shaded from the direct rays of the sun. Here they remain, and form nice crowns, being kept frequently hoed, and never allowed to become dry at the root till August, when the desired number are potted up for an early supply, while the bulk remain till September, when they are removed to frames. Red spider rarely if ever makes its appearance, and the plants were all in the pink of condition, promising a fine show of blooms. After the clumps are in the frames plenty of air is

given on all possible occasions. The frames are closely matted at night whenever the weather is inclined to be frosty. By this means a continuous supply is kept up, as it is Mr. Nicholl's favourite flower for a buttonhole; failing these, a Carnation is preferred.

The collection of herbaceous plants consists of a large border running through an old orchard (see illustration), which was made by Mr. Withers a few years ago, and is continued, only on a narrower scale, through the kitchen garden. A few good things noted in flower were *Chrysanthemum maximum* King Edward, a splendid acquisition for decorative purposes; *Phloxes* in various shades; *Scabious*, *Carnations* (large clumps of the old Clove), with some beautiful specimens of the *Crimson Rambler Rose*, although just past its best; also Dorothy Perkins, Mrs. Flight, and Celine Forestier, these being all trained on stout poles. Along the front was an edging of *Nasturtium Tom Thumb*, and batches of annuals, wherever space permitted. The following are cultivated expressly for table and house decoration:—*Malope* in variety; tall branching *Larkspur*, *Clarkia*, *Godetia*, and *Candytuft*. The *Larkspur* is sown in autumn, when it produces finer spikes than that sown in the spring. Sweet Peas, Poppies, and others are also treated in the same manner. Many Dahlias were in bloom, but named varieties were conspicuous by their absence. The reason is because a packet of seed is purchased each year, and only the best are retained, so a collection of good forms have been gradually brought together by strict selection.

The kitchen garden is a large one, and the fine vegetables are one of the chief features at Bear Place. Peas were exceptionally good, and Mr. Withers remarked that he had found the following give good results, although a number of novelties are tried each season:—First early—*Day's Sunrise* and *Early Giant*; second early—*Dr. McLean* and *Best of All*; late—*Latest of All* and *Eureka*.

On the walls are a thriving lot of young Peach trees, Plums, &c., and the new orchard (just outside the kitchen garden), made some few years since, is now bringing forth fruit; but the trees were slow in growth till the space between the rows was trenched. This is not only beneficial to the trees, but enables Mr. Withers to cultivate a large quantity of Potatoes and Kale for the winter.

The greenhouses are not numerous, but some fine batches of *Cyclamens*, *Cinerarias*, and tuberous-rooted *Begonias* are to be seen in their season; especially the first named, which are brought to a high state of perfection. About 300 *Chrysanthemums* are included, and these bore evidence of proper treatment. Many are grown in 6in pots for house decoration, such as the old *Madame Desgrange*, *Marie Masse*, and *Harvest Home*. Both Mr. and Mrs. Nicholl are fond of gardening, and take a keen interest in the welfare of their employees. A cricket ground is provided, among other things, and Mr. Nicholl is president of the Wargrave Gardeners' Society.—T. W. B.



Herbaceous plant border at Bear Place.

Hardy Plant Notes.

Iris Palestina.

In the genus *Iris* there are some singular as well as many exquisite flowers. Such may be reckoned *Iris palestina*, although it has not the variety of colouring possessed by the singular Snake's Head *Iris*, or Mourning *Iris*, *I. tuberosa*. Its colouring is quiet in the extreme, being hardly describable by any other term than that of apple-citron. It holds all its petals erect, and its main charm lies in its early flowering, for one has had its flowers as early as January and February in the open—a time when even the most insignificant flower is welcome. This precocity of flower is, however, its destruction, for, if not protected, it may have its foliage so injured that it cannot complete its growth, with the result that the bulb dwindles away. This has been the cause of its loss with me, and it is really only worth growing by those who can give it the protection of a cool greenhouse, a cold frame, or a handlight, or bell-glass in and for a little after

its flowering season. I have grown it in a sunny position in light soil, and protected from cold winds by a low wall, but in severe winters it suffered so much that, as, already indicated, it eventually died. Although not to be ranked as among the choice and most beautiful of these wonderfully formed and coloured flowers, it is interesting, and has some attractions in addition to its name. It is not confined, however, to the Holy Land, but is to be found in various parts of Syria and Mesopotamia. Planting should be done as early as possible, at a depth of about 2in.—S.

A New Violet.

The accompanying illustration shows the new American Violet "Boston," which has created quite a stir among Violet growers throughout the United States. Although this variety will not be disseminated until April, I have been able, through the courtesy of the originator, Mr. W. Sim, of Cliftondale, Mass., to see for myself the many good points of this wonderful newcomer. I have picked half a dozen blooms at random for the purpose of measurement, and I found them to average one and three-quarter inches across. I could see, however, that if I had cared to select a few of the best, I might have reached the 2in mark. Size and substance in the flower are by no means the only good points. Increased size is accompanied by a



The new American Violet, Boston.

corresponding stiffness and length in the stem. I found the flower stems to average from ten and a half to eleven inches in length, and to be almost double the thickness of the variety Princess of Wales. So far as fragrance is concerned, Boston is superior to any Violet in cultivation, and as a keeper I have never seen its equal, this being one of the principle reasons why American growers are so anxious to procure it. Summing it up in a few words, I may say that the flowers are of splendid form, exceptionally large in size, with stems stiff and erect. It is a vigorous grower, a persistent bloomer, and when grown side by side with the variety Princess of Wales its superiority is most marked. The colour of the flower is a shade lighter than Princess of Wales, but the difference in this respect is so slight as to be barely noticeable. I am certain that so far as America is concerned this Violet will have a record sale, and it is one which no British grower can very well do without. Having seen it, and compared it side by side with the best varieties at present in cultivation, I have no hesitation in saying that "it licks creation," if I may be permitted to use an Americanism. Mr. Sim, a Scot, by the way, who is the introducer, is the largest grower of Violets under glass in the world. At Cliftondale, Massachusetts, during the winter and spring months he picks between three and four million blooms, all of the finest quality. I am sure that a description of the methods followed in this up-to-date establishment would be interesting to many Journal readers. This, however, I will leave for some future occasion.—Wm. McM. Brown, North Easton, Mass.

Artificial Manures

For Fruit Trees and Vegetable Crops.

In reply to "X. Y. Z.," the best general manure for fruit trees, such as Apples and Plums, is that known as Tonks':—

Superphosphate of lime	...	...	...	12	parts.
Nitrate of potash	...	...	...	10	"
Sulphate of magnesia	...	...	...	2	"
Sulphate of iron	...	...	...	1	"
Sulphate of lime	...	...	...	8	"

Apply in February at the rate of 1lb per square yard.

Gooseberries and other bush fruits are best dressed with stable or farmyard manure at the rate of about twelve and a half tons per acre, and this supplemented by six hundredweight of superphosphate, one hundredweight of sulphate of potash, and four hundredweight of nitrate of soda. This gives better results than heavier dressings of dung without concentrated fertilisers.

Strawberries yield best with a light dressing of dung, about twelve tons per acre, with four to six hundredweight of superphosphate and two hundredweight of nitrate of soda per acre. Nuts are also bettered in appearance if not in quantity by a dressing of from four to six hundredweight of superphosphate and two hundredweight of nitrate of soda per acre, in addition to the usual dressing of wool dust.

Asparagus yields best with a light dressing of town dung, say twelve and a half tons per acre, four to six hundredweight of superphosphate, four hundredweight of kainit, and two to four hundredweight of nitrate of soda per acre. Celery is one of the few crops that cannot be grown with any great success, except on soils particularly well adapted to its cultivation, without the use of very much larger quantities of dung than are necessary for other crops. A dressing of phosphatic manure in addition to the dung in preparing for planting, and occasional top-dressing with nitrate of soda during growth gives best results.

Kidney Beans even are grown to most advantage with a light dressing of dung, supplemented by four to six hundredweight of superphosphate and one hundredweight of sulphate of potash (or on light land four hundredweight of kainit) per acre. The use of two hundredweight of nitrate of soda per acre increases the average weight of Beans by about one-third. Green Peas are best had from a light dressing of dung and of phosphate and potash salts just mentioned, but the quality is improved by the addition of two hundredweight of nitrate of soda

per acre, both as regards colour, texture, and taste.

Carrots and Parsnips are not usually dunged for, but grown on land dunged for the preceding crop, supplementing with four to six hundredweight of superphosphate and one hundredweight of sulphate of potash per acre, following with a top-dressing of two hundredweight nitrate of soda per acre after the plant is well up.

Cauliflowers and Broccoli are best grown with a light dressing (twelve and a half tons per acre) of dung, helped by five hundredweight of superphosphate, four hundredweight of kainit, and four hundredweight nitrate of soda per acre, the nitrate being divided into two dressings. On land in good heart, a good crop may be had without dung by using six hundredweight of superphosphate, four hundredweight kainit, and six hundredweight nitrate of soda per acre, the last-named being divided into two or three dressings.

Potatoes, especially early, are best had from dressings of dung. For late crops, a light dunging (twelve tons per acre), supplemented by five hundredweight of superphosphate, one hundredweight of sulphate of potash, and four hundredweight nitrate of soda per acre, the nitrate being applied in two dressings. On light soils two hundredweight of nitrate of soda might be replaced by two hundredweight of sulphate of ammonia (applied before planting) for the early varieties, or by eight hundredweight of rape meal, or five hundredweight of fish guano for the late varieties, two hundredweight of nitrate of soda per acre being applied as a top-dressing.—EXPERIENCE.



Allamandas.

The plants may now receive the final pruning, and a few be started into growth. Unless it is desirable the growths should spread over a larger area during the coming season than last year, the shoots can be cut back to within a joint or two of the old wood. A week or so previous to top-dressing, or repotting the plants, they must be thoroughly soaked with water. Fibrous loam should form the greater proportion of the compost, mixing with it a little well decayed manure, leaf mould, and sand. Syringe the wood several times a day to assist the plants to break into new growth. Bougainvilleas should also receive similar treatment.

A Dahlia Monstrosity.

During early September I came across a Dahlia bud which, instead of swelling out into a head full of florets, was running out into a continuation of sepals, but at that time had only some dozen or so. This, however, was not so very unusual, as



A Fasciated Dahlia.

I had often seen the same thing. Towards the end of October I chanced upon the same freak again, which, to my astonishment, had lengthened to about 4in, with a long succession of fleshy green sepals, but at the end had developed an ordinary flower bud which was just opening in quite a rational manner. Fearing frost, I was afraid to leave it to fully develop, as I thought it might be worth while to photograph it for reproduction in the *Journal*. I might add that on looking through the plants of the same variety I found several other similar freaks, but not nearly so pronounced as the one shown.—H. STREDWICK.

The New *Asparagus elongatus*.

Asparagus elongatus is a native of Africa, whence it was introduced by W. A. Manda, of South Orange, N.J., some years ago. Only a few plants were distributed at that time, but it is now being sent out in larger quantities. It is a beautiful plant, a free grower, and when the stems are cut they again branch out and produce a new crop. Not only is the green very beautiful (comments the "American Florist"), but when the sprays are laden with the miniature jewel-like flowers they have a fairy-like effect that is very charming. One good flowering stem, which grows, by the way, often to a height of 6ft or 7ft, with a dozen Carnations or Roses is a bouquet ready made. It can also be used with Sweet Peas and other flowers in the same way as *Gypsophila paniculata*.

Caladiums.

Caladiums, but more particularly those known as fancy-leaved Caladiums, are among the most beautiful foliage plants in cultivation, and they are, in consequence, grown in large numbers and made use of in various forms of decoration indoors and out. The peculiar form and rich varied colours of Caladiums give characteristics almost exclusively their own. They are not only well adapted for massing of themselves, but are also peculiarly well fitted for use along with many kinds of ferns. About the beginning of March, the tubers desired for early development should be procured and got ready for starting into growth, and that is best accomplished by placing the tubers on even surfaces of moss in shallow boxes, and then merely covering them with chopped moss, but it is important that they should be covered so that root action will be facilitated, because the roots proceed from the upper portion of the tuber. The flats containing the tubers should be placed in a house where the temperature does not fall below 70deg.

Alpinia Sanderi.

Alpinia Sanderi is a pretty decorative plant, variegated with white on a green ground, and the leaves are shorter than those of the well-known *A. vittata*. Alpinias are among the easiest of all stove plants to grow, throwing up their shoots from the base very freely. All that is needed, says a writer in "Gardening" (Chicago), is a hot, moist house, light sandy compost and, if the colouring is to be kept good, not too much pot room. They are pretty in a very small state for filling baskets or dishes, or may, by potting on, be grown to almost any size desired. Frequent spraying on fine days is necessary to keep the plants clean and to maintain the requisite degree of moisture in the air. Propagation is easily effected by shaking the plants free of all soil and cutting them up. Every piece of root with an eye to it will grow and make a plant. The cut portions may be placed in lines on bottom heat on the propagating benches, and kept constantly moist. When new roots form and young shoots are pushed up the divided portions may be potted singly.

Soil Organisms.

Microscopic gardening has unearthed the forms which cause the rotting of Flax, the decomposition of sulphur compounds and iron salts, and which bring about numerous other changes in soil; it has also brought to light all kinds of disease germs—forms fatal to man and other animals, as well as to plants, of which I may mention "finger and toe," the "smuts" of corn, damping off of seedlings among others. It has taught us to appreciate, even more in detail than Darwin's beautiful book had already taught us, the enormous influence of earthworms in soil, for these animals bring up from depths at which they are inert and useless, germs which can again do their work at the higher levels of the soil—which reminds us that earthworms, like slugs, ground-beetles, and other relatively large soil-animals, are active, if unconscious, microscopic under gardeners, whose actions profoundly affect the distribution of the various soil organisms. But here I must stop, or the mere recital of the little that has yet been accomplished, judging from its comparison with the indications of what is coming in day by day, will carry me beyond the scope of a letter to a trial of your patience, for which I have no desire to incur responsibility.—M. W.

A Method of Forcing Rhubarb.

The pit system, on account of its inexpensiveness alone, deserves consideration, and cannot fail to attract the attention of market growers and distributors in coming years. According to a writer in "The Newcastle Chronicle," the pits are simply "dug outs," 3ft in depth. In the bottom they have manure placed a foot or 15in deep. This is well firmed and covered 2in with soil. Then the roots are placed upon it, covering the whole of the floor space available. They are put quite close to each other, and are then covered up to the crowns with manure and soil. All that remains to be done is to cover over the top pit with boards, these again being covered up, 4in or 6in in depth, with manure, to exclude the air and light.

The generation of heat under this simple method is remarkable. The roots soon start into growth, and send up large numbers of finely coloured sticks, which are, strange to say, almost devoid of leaves. Picking is maintained as long as the roots bear. The preparation of the roots is simple. They should be preferably three years old. They are lifted in November and left on the surface. If they come under the influence of frost all the better. The profits of the business are very large, and the demand for winter Rhubarb consisting of fine long, thick sticks with little leaf growth is unlimited at profitable prices. As much as £150 can be made from an acre of land dealt with under pit culture for winter Rhubarb. The roots being under the surface level are not affected by winds, cold spells, or chilling rains. An even temperature is readily assured, and this is of the utmost importance.

The Rust Disease of the Hollyhock.

The New York College of Agriculture, department of plant pathology, Ithaca, N.Y., is now undertaking a careful and exhaustive study of this Hollyhock disease. It is well known as one of the most serious and widespread of the plant. Under the most serious attacks of the disease the plants are almost entirely defoliated and the blossoms greatly reduced, both in size and number. Some preliminary experiments previously carried on indicate that this disease can be readily controlled by the use of certain spray mixtures. It is now proposed to test this out the coming summer and publish a full account of the disease and how it may be controlled. The solution of this will undoubtedly be of great benefit to the seedsmen, many commercial florists, and all who cultivate the Hollyhock for pleasure or profit. H. H. Whetzel, assistant professor in charge of this, asks for contributions of seeds or cuttings of any Hollyhocks, Hibiscuses, or Mallows for use in these trials. He hopes not only to determine what spray mixtures are most efficient, but to ascertain if any varieties are immune to the disease.

Rudbeckia laciniata, Golden Glow.

Tall Sunflower-like plants are not by any means scarce in late autumn, but there ought to be room in many gardens still for the stately *Rudbeckia laciniata*, Golden Glow, although when improperly used it is less attractive, and in some seasons its flowers soon lose their brightness. Yet there are places, such as the back row of a broad border, where it is really fine, especially in a dry season, when its flowers retain their clearness of colouring, and give their round heads of gold with all their freshness. One would hardly recognise this flower as a *Rudbeckia*, as the cone-like centre of the typical *R. laciniata* is quite suppressed, and the blooms are quite double. They are of moderate size, and come in well for cutting; but it is, I think, as a border plant that this *Rudbeckia* is most appreciated. Given a broad border, a sunny season, and fair feeding, it will soon form a large plant, rising from eight to ten feet high, and giving a profusion of its golden yellow flowers. By no means a new plant, it is yet a desirable one for those who have plenty of room.—M. D.

Chrysanthemum, Earlswood Beauty.

Ten years ago the really good single Chrysanthemums were hard to find. The craze then was all for the immense exhibition Japs, but a very considerable change has recently taken place. Earlswood Beauty (primrose, with a prominent green eye) was one of the earliest, and still remains as one of the best. Other good singles are Edith Pagram, rich pink; Mary Anderson, blush white; Bronze Edith Pagram, bronze; Mary Richardson, reddish salmon; Miss Annie Holden, yellow; Framfield Beauty, rich crimson; Mrs. E. Roberts, blush; Ladysmith, pink; Kitty Bourne, deep yellow; Purity, white; Crown Jewel, bronze yellow; Mrs. R. N. Parkinson, bright yellow; Roupell Beauty, wine red; Altrincham Yellow, yellow; Mrs. H. J. Hampson, fawn; Sir George Bullough, deep yellow; Fair Rosamond, rose, with white band; F. W. Smith, rich pink; Eureka, white; G. W. Forbes, rich crimson amaranth; Mrs. Zachery Bird, primrose; Will Jordan, crimson lake, and Felix, crimson bronze.



Small Holdings.

Great movements are now being made to forward the cause of small holdings. It will be a boon to England when a man can become the owner of a small plot of land, and find himself dependent upon himself alone. "I'll fare the land, to hastening ill a prey, where wealth accumulates and men decay." Living as I do midst the great stretches of the Worcestershire small holdings and allotments, I can speak with a great deal of confidence as to their ultimate success. One man tells me that after paying up all expenses to cultivate his patch of Strawberries, he cleared £40 profit off one acre. Another tells me of a profit of £36 per acre, and so on, some with excellent results, others less satisfactory. Some have bought their plots outright, and built their homesteads upon it.—BLACKWELL.

From all sides of the political arena it will be conceded that the Small Holdings Act is the result of an earnest attempt to cope with the serious depopulation of rural England. Owing to the unsatisfactory conditions of country labour and pursuits, the legitimate sons of the soil have been attracted toward in a steady stream, the manufacturing centres have become congested with an overstocked labour market, and the willing earth calls in vain for the sinewy manhood that was wont to gather in her treasures.

The Small Holdings Act has been in operation for a period too short to allow anything more than a speculative and qualified opinion regarding its eventual working, but so far its splendid progress through the initial stages must be highly gratifying to all concerned in its inception. From eight counties alone the Board of Agriculture has received application for over 41,000 acres on behalf of 2,715 persons, although the Act has been in existence but a few weeks. These facts give convincing proof of the reality and intensity of the land-hunger prevailing throughout the country; and if, as Lord Carrington believes, the applications are emanating from men of the right sort, who have a little capital at their command, and are genuinely desirous of instilling into their children the healthy love of God's free air and the occupations of husbandry, the happy augury is, indeed, complete.

The facilities for the building of cottages upon occupied land is one of the many useful provisions of the Act. For some time the housing of the working classes in country places has not been all that could be desired. The scarcity of suitable dwellings in our villages and the monopoly of ownership have without doubt militated in no small measure against a general return to the land. The clause which authorises the compulsory purchase of land has been severely criticised in some quarters, but I am persuaded that it will not often be necessary in practice to resort to extremes. In certain parts of Worcestershire a satisfactory system of small holdings has long been voluntarily adopted, and landlords all over the country should not be slow to realise that the good cultivation inseparable from successful market-gardening will increase land values, and in no sense be detrimental to their interests.

We may rest assured, also, that, where land is to be acquired under the Act, the local authorities will use their powers with fairness and discretion. It is certainly not in the best interests of the State that any one class should be unjustly dealt with for the benefit of another; therefore, the rights of the landowner and farmer must be amply considered and properly respected.

With regard to the prospects of would-be small holders, it would be well to emphasise a few salient points. There is, undoubtedly, a living to be got from a few acres of good ground, especially where the labours of a grown-up family enable the holder to keep working expenses at a minimum. The one indispensable element is whole-hearted, plodding work. The man who takes a small holding with the idea that he has found a sinecure will have an early and a rude awakening. Again, no man can expect to prosper on a holding unless he possess some practical knowledge of cropping and the requirements of the soil. After a time, when this mode of tenure becomes general, competition will be very keen, and the profits will go to the tenant who does the right thing at the right time. Railway and market conveniences, too, should be taken into consideration before a definite conclusion can be arrived at concerning the desirability of plots, as unfortunate conditions in this respect will often play havoc with otherwise reasonable expectations.

In connection with the small holding movement, the utilisation of co-operative credit banks, similar to those existing in Germany and also now in England, would answer a good purpose. The ability to safely borrow money at a low rate of in-

terest upon the collective security of the members of such banks should be a boon to many a struggling worker, and enable him to avoid the vampire clutch of the insatiable moneylender.—J. E.

Outdoor Peach Trees.

While the question of success with outdoor Peaches does, as Mr. Arnold states, in many cases rest in a well-prepared border, in all it more certainly still rests in a greater degree with the

the maturation of the wood of the Peach and Nectarine, and borders of ordinary depth, say 2½ ft., are not sufficiently warmed during the summer for the successful cultivation of these fruits. My experience is that the wood of the Nectarine requires a greater degree of warmth to mature it than that of the Peach. The Nectarine, too, is generally not as satisfactory outside as the Peach.

So long as the wood is only half-ripened, so long will blister be troublesome. It was most noticeable in the spring of last year how comparatively little blister troubled growers as compared with other seasons, due, no doubt, to the excessive



Chrysanthemum, Earlswood Beauty. (Primrose, with prominent green eye.)

condition of the roots together with suitable climate. With these lie the chief factors in producing ripe or unripe wood, blister and other evils. That the necessary conditions in the former respect are more nearly obtained in some soils than others goes without saying; hence, without going into climatic conditions, it may be far easier to produce good fruit in some districts in the Midlands than in others 100 miles farther south. When the best varieties of Pears can be ripened successfully there should be no trouble in ripening Peaches. On many cool or cold soils the temperatures ruling through the growing season are far too low at much more than a foot in depth for

warmth of the August and September previous. Though the summer of 1907 was by no means an ideal one, outside Peaches generally were distinctly good, that is, where trees had proper attention. Those who want these and other choice fruits in good condition without it, are, I think, wanting "something for nothing," as the saying goes.

I believe the Peaches which Robert Errington grew out doors in Cheshire were the admiration of horticultural London, and when visiting his friend Fleming at Trentham, he wrote afterwards of the success the latter had attained there, in a notoriously bad climate and soil, with these and Pears. I hardly

suppose that anyone would have the temerity to argue that, other things being equal, the same results could not be achieved now. We have no meteorological data for presuming there has been any diminution of solar heat since then.

It sometimes happens that an otherwise excellent wall for the cultivation of Peaches is seriously impaired by a backing of soil, the lower part of wall acting as a retaining wall on its northern face. In such a case it is a difficult matter indeed to make the root medium sufficiently warm, as the heat is, as a matter of course, transmitted through the wall to the cold soil on the northern side almost as fast as it is absorbed on the southern one. In one particular instance, I have thought much of the success met with was due to the opposite conditions, viz., the soil on the north-east aspect of the wall was 5ft below the level of the border on the south-west side. Under natural conditions, and with a proper supply of moisture, the roots can never be too warm in this country. In one garden in my charge, on two walls of precisely the same aspect, I attributed the better ripened wood on one wall to the fact that the soil was practically level on both sides of the wall, while on the other the ground was 4ft higher on the north side. Equally marked, too, was the difference in flavour.

The foundation of successful fruit culture is, without doubt, well-ripened wood and a proper balance between root and head, and this lies as much with conditions of root as with those which affect the branch. Errington, in his eminently practical writings on fruit culture, preached in season and out of season the gospel of well matured wood, and said if any of his southern readers thought him over insistent, they should go to John-o'-Groats and try their hand there.

It often happens that from pressure of other work, the nailing and tying-in of the successional bearing shoots is not taken in hand until late in the season, or perhaps such time as gales threaten to tear the trees off the walls; consequently, not only is the flavour of that season's crop impaired, but that of the following one is damaged also. We depend on the raising of local temperature for success with these and other choice fruits, and when the whole surface of the wall is not only shaded by the outstanding shoots, but the enclosed body of air acts also as a non-conductor of heat, and absorption and radiation are reduced to a minimum, practically defeating the whole purpose of the wall. Anyone who has spent a summer on eight or ten acres of bare ground will have had the above fact sufficiently emphasised without any repetition.

Errington even went so far as to deprecate the afternoon syringing of outdoor Peach trees for the same reason, relying on the winter dressing of sulphur to the trees and wall as a preventive of red spider. His principle was founded on common sense. In a healthy tree there is no difficulty in getting sufficiently long shoots. The trouble is to ripen them thoroughly to the tips. It is on this vital point that the extension trainers come to grief. Immature growths never break evenly. On the other hand, with stained and stunted wood there is a paucity of wood buds, and bare trees result in both cases.

Many who meet with success in this and other branches of fruit culture fail to estimate rightly the natural conditions apart from others, under which success is gained, and were they to have to try again, say on Gault or London or Wealden clay, without an intervening friendly covering of drift, there might be another story to tell. There are gardeners, of course, whose natural pertinacity, when allied to a sympathetic employer with a deep pocket, would overcome such obstacles, but time is needed in such cases, and it often happens that from the precarious nature of the gardener's employment, before he can reap the result of his work his place is untenable, and he feels he must make room for another if he wishes to retain his self-respect. Or it may be death steps in, and he has to seek another situation.

All such work, or any that needs a lengthened term of office for the directing mind, is impossible in private service as a whole; hence it is that only ephemeral subjects are given much consideration, unless the employer happens to be a real gardener himself, directing his own garden. We live in the age of the cinematograph and motor, and the spirit of it invades the garden. There is no time to see or think of more permanent and more beautiful things. Some day, perhaps, we shall see the garden fittingly clothed and in its right state.—D.

It was pleasing to read the remarks of "D. McP." on this subject on page 173. It now seems pretty well established that, in spite of pessimistic outcries from certain quarters, the Peach can still be successfully cultivated on walls out-of-doors in many districts, not only in England, but also in some of the more favoured spots in Scotland. As a lad I helped to grow Peaches outside in Lincolnshire, where the difficulties to be encountered were decidedly greater than are to be met with in the southern counties, or for that matter, those also of the west. I can thoroughly endorse all your correspondent says in favour of Hale's Early for outdoor work. It is a free setter and grower,

and all who know anything of Peaches are aware that very little can be advanced against the fruits themselves when ripe and well grown.—J. W., Evesham.

Primula Forbesi.

In your issue of the 20th inst., under "Hardy Plant Notes," I was pleased to see *Primula Forbesi* mentioned by your correspondent "M." One seldom meets with this pretty and interesting little Primrose in hardy plant collections, and I am afraid such warnings as given by your correspondent are not likely to induce a popularity of this favourite rock plant. I have grown it for several years on a sheltered part of the rock garden. When associated with the Bird's-eye *Primula* (*P. farinosa*) the effect is very pleasing during the flowering season. An occasional division and replanting in the spring, using fibrous loam and old mortar rubble broken up into fine particles (with a frond of Bracken laid over the plants during very severe weather) is all that is necessary in its cultivation. *Primula Kewensis* has been quite happy for two years under similar treatment. It seems such a pity that these gems can only be grown in a southern clime (as your correspondent states) before they may be allowed open-air treatment.—W. H. J., Cheshire.

Spraying Research.

There is so much need for scientific research in reference to spraying, and particularly the proper proportionate combination of spray-stuffs, that I read your reviewer's notice of the Eighth Woburn Report with regret. As our Board of Agriculture is not sufficiently equipped to undertake research, it appears to me that fruit growers have reason to be grateful to the Duke of Bedford for providing the necessary funds, and to Mr. Spencer Pickering for devoting his chemical knowledge to such investigations as are indicated by the report. I, for one, have studied that report with the greatest interest, and those fruit growers who are not disposed to give close attention to its details, have an excellent summary offered to them at 3d., post free.

As for the numerous proprietary spraying mixtures, I am not fond of "buying a pig in a poke." I like to know what I am getting in spray-stuffs, just as I do in artificial manures. Compounded articles are always dearer than their ingredients, and there is no need to encourage the business which leads many persons to waste money on compounds that they could make with great saving for themselves. Besides, it is absurd to suppose that one particular combination in a winter or summer wash suits all the varying circumstances.

What we want is to have the preparation of spray-stuffs placed on a scientific basis, numerous experiments conducted with scientific precision, numerous reports on the results, and careful study of such reports by fruit growers, so that they may be able to take action intelligently. All this is what is being worked up to at Woburn, and the work done there seems to me highly commendable. If the results were reported without the display of scorn towards others to which your reviewer refers, and with tables less brain-splitting in form, the change would certainly be an improvement. The Board of Agriculture cannot help being only half equipped—less so than the Agricultural Department of any petty Continental State that has one; and I feel confident that the Intelligence Division does the best it can with the resources at its command.—WILLIAM E. BEAR, Hailsham.

The Eighth Woburn Report.

The reviewer of the above report does not think it requires a very exhaustive notice, and says the most valuable page for fruit growers is the one which announces that a trade firm is prepared to supply the wash recommended. I think the reviewer takes up these reports from Woburn with a mind already prejudiced against any experiments that have been carried out by Mr. Spencer Pickering. This is not the first report he has reviewed adversely. I quite agree with him when he says fruit growers have come to the conclusion that it is cheaper to purchase the wash or spray-fluid in a concentrated form, and if they can purchase one they can rely on at a reasonable price it is to their advantage. Then he goes on to say that Mr. Pickering has done fruit growers good service in improving upon the insecticides already upon the market, but makes no allusion to the mixtures that have been experimented with at Woburn, nor of the results published in the columns of the *Journal of Horticulture* for the benefit of fruit growers. Admitting that Mr. Pickering has only improved on the insecticides already on the market, the thanks of fruit growers are still due to him, for some of the washes needed improving very much. The reviewer does not give fruit growers credit for possessing much brains, when he says that in using the term "washing trees," the impression conveyed is that they should be thoroughly drenched. I think the ordinary individual has sense enough to

know it must not be thrown on the trees in bucketfuls. Then he finishes the review with an anecdote, which no doubt he thinks is smart, and leaves readers to draw their own conclusions. No doubt they will, but perhaps not the conclusions he anticipates.—J. S., Crewe.

Children as Handicaps.

You may be interested to know that I have at last secured a permanent situation. It is now four months since I left B—, but my children (the bane of the gardener) have been the means of keeping me out so long. I should like to hear your voice, Mr. Editor, raised against this cruel and unnatural custom, viz., that of preferring a man with no children to the one who has, no matter what his qualifications may be. Why should a gardener, who is classed amongst the most intelligent of men, be placed under such a bane?—T.

Misuse of Fertilisers.

With regard to the way in which manures affect young plants (I mean by manures those patent quick-acting fertilisers in general use) we find, or at least I have found, that a great many gardeners make a practice of mixing a proportion of some patent manure with all composts made up for general use. For final pottings, or for hardwooded plants, this may do very well, provided it is not overdone; but if young stuff is to be potted into this the results will in the majority of cases be disastrous. For the answer let us refer to infants. Their diet at first consists entirely of milk, Nature's own food, and natural milk contains all the nourishment necessary for subsistence. But as the child develops bone and muscle it requires stronger food for its proper development. Just so with plant life. In the early stages a good sweet compost of mother earth contains all the nourishment that young plants need, and if large quantities of highly concentrated manures are present the plantlet is bound to die of "indigestion," or be very much impaired thereby. It may therefore be taken as a safe rule never to give manures of any kind to plants when in a young state, but rather to wait until they are nearing maturity, and then feed them intelligently as they require it.—E. LAWRENCE.

Canker in Apples.

It has been with much pleasure that I have watched the progress of this discussion, which, in part, emanated from an article of my own that appeared in an issue at the end of last year. The general opinion appears to be that the disease is not so much to be dreaded now as formerly, especially where the methods practised are intelligent and in accordance with the needs of the trees: "A Grower" appears to have had rather a troublesome experience, and we know such cases do occur, and have occurred in the past, when nothing the cultivator could, or can do, stops the progress of the disease. Mr. J. Easter's suggestions of flag-stones or Portland cement is almost ludicrous to those who have to grow for market, and who know the difficulty of maintaining a balance upon the right side. The trouble mentioned by "A Grower" relative to Lane's Prince Albert I have not noticed, though we grow many hundreds of bushes. From the remarks let fall, it almost looks as though the trees had been treated with a too strong application of some spray fluid, but, of course, without further evidence one cannot definitely offer such an opinion, as it is just possible the trees may not have been treated with strong dressings of any kind.—J. W.

Pot Washing.

Mr. Riding appears to have raised a terrible storm about his head in advancing his economical views upon a somewhat humble subject. One scarcely likes to utter a word against anything that tends to cleanliness in gardens; but few men of the present day can afford to be such sticklers about trifles as were some of the old school of gardeners. Some growers had an idea (it appears from the present discussion some of these people still exist) that it was not much short of crime to repot a plant in a pot that had not passed through the washing tub. Well, other times other manners. We do not believe it necessary to wash pots every time they are used, but we do object to those which have become badly grown over with moss or covered with slimy matter being used again without washing. As one of the writers in this stirring controversy points out, clays differ, as do methods of burning, and difference in water accounts for the varying state of pots in different districts. In spite of Mr. Riding's views on the subject, many a garden lad will still wash pots when he cannot be employed to better purpose out of doors, and the opinion will, we think, still hold good generally, that in view of the number of pests gardeners have to contend against, we shall not easily become too clean in our methods. At the same time, we recommend nobody to carry the practice to the lengths of faddism.—TRADER.

Dahlia Notes.

Every Dahlia grower who has cultivated fancy varieties has been annoyed more or less at the tendency of many to produce blooms which, instead of being speckled or striped as the case may be, are wholly self coloured. The colour is, as a rule, the same all over the bloom as the darkest colour of those which are found in the fancy state. Thus a white ground speckled and striped crimson will, as a self, be crimson entirely. It has been given out by a lecturer that plants producing fancy flowers have a disease, and although we do not go so far as to agree with this statement, yet it is certainly a fact that plants which are going to flower in the fancy colours are seldom or never as robust as plants which have lost the two or more colours.

A very striking instance of this came under our notice recently in the case of two tubers bedded in for cutting production. These old roots were the same variety, and when in true character should produce cuttings of a light green colour and under medium size. When, however, one of the roots sent up cuttings they were quite a deep crimson and strong sturdy stuff, which at once attracted our attention. On looking at the label the word "self" was written across the name, which denoted that it was a fancy which had reverted to a self colour, and the root had accidentally been bedded in for cuttings. Thus it will be seen that even as early as the cutting state the whole nature of the variety is changed.

Many of the fancy doubles are very shy tuber producers when true, but as soon as they throw off the fancy nature they grow much stronger, and even strike as cuttings easier. Not only on totally distinct old roots do the cuttings vary, but we have occasionally seen one cutting amongst a number of others which instead of being a light green like its brethren, was a dark red, and if grown on would undoubtedly produce self-coloured flowers. Many soils favour this reversion much more than others, a light sandy loam being the best for keeping fancies true. On the other hand, clayey land, especially if somewhat low-lying and shady, is about the worst. Once a plant produces wholly self-coloured flowers on all its branches it never again comes true, but a single bloom here and there is of no consequence.

BLIND ROOTS.

Not very long ago a writer in a gardening journal openly stated that nurserymen who introduced new varieties "doctored" the lower eyes of the cuttings so that in the spring of the following year the tubers resulting from such cuttings would fail to start, and thus create an increased sale of that variety for the introducer, who, of course, kept his own stock well eyed. Without going into the question of the absurdity of such a proceeding on the part of the raiser, who under such a régime would in two or three years fail to find a purchaser for his plants at all, as "once bitten, twice shy," we would point out that in our opinion, and after carefully studying the subject, the cause of blind roots is usually cultivation. Why we have come to this conclusion is from the fact that big stemmed tubers, i.e., tubers from plants which the previous autumn were particularly well grown, are exceedingly bad cutting producers. Very often such roots appear to have so developed that the eyes situated at the base of the cutting become completely overgrown, and sometimes burst up through the centre of the old stem, having become embedded in the heart of the tuber instead of round the base of the old stem, as they should be. It is not unusual, too, when a tuber absolutely fails to get vent to see them develop knobs often as large as two hazel nuts, which are evidently caused by the eyes trying to push through, and in some cases this has actually been the result, and tubers have started after being subjected to heat for eight or ten weeks.

There is, it is true, one form of cutting which in many cases will result in a blind tuber, and that is cuttings which have no leaves or eyes at the base. Cuttings of this description are those which break out at the side of the stump left when first cuttings are taken. Smooth ended cuttings, however, are bad rooters, and form no appreciable percentage of the bulk.

HOW TO OBTAIN EARLY FLOWERS.

If Dahlias are required for an early show, the would-be competitor should obtain from a reliable firm what are known as pot roots, that is a root grown in a small pot. These small roots are what might be termed intermediate between struck cuttings and old clumps of tubers. When potted they quickly start growth and make somewhat tall but excellent plants for transferring to the open ground, where they grow away quickly and flower in good time. Pot roots, as a rule, are quite as useful for producing exhibition blooms as young struck plants, as they possess but little actual old tuber, and they root very freely, starting a large number of stout young tuber roots, which soon ignore the old portion, which decays entirely away, leaving practically a young plant thoroughly established.—P. P.

Old Fruit Trees.

There is a good deal of sentiment attaching to old fruit trees when we have lived with them most of our lives and have both grown old together; but when entering into possession of an old garden where everything is about the same age, the house included, no such sentiment stands in the way of the clean, if destructive, sweeping of the new broom. This, however, is the other extreme, and it is better to adopt a middle course, or compromise. I propose, by means of a few examples, to give some hints that may be of use to those in possession of old and unprofitable trees.

Some of the most awkward trees to deal with are overgrown pyramids and bushes of Apples and Pears, often crowded with spurs on the outside, and either in a weakly condition, or, from long subjection to hard pruning, a forest of unfruitful growth. One good plan when the trees in the garden are of this nature is to make the best of them for a few years and make a plantation of new bushes and pyramids elsewhere, lifting them biennially, so that when they are getting into good bearing in five or six years' time they may be put into the place of the others and suffer very little from the removal. This is assuming it is desired to continue a plantation in the same part of the garden. The old trees should have the spurs thinned as well as the branches, thoroughly opening out the centre to the light, and letting those branches that remain extend their growth, when the young growth will produce a fair crop in two or three years. Where the trees are weak from old age or excessive bearing, if not absolutely hopeless they may be given a fresh impulse by digging a trench round them at a rather less distance than the spread of the branches, severing the coarser roots, and filling up the trench with good loam mixed with rotted manure, leaf mould, and wood ashes, bringing the fibrous roots nearer the surface as the work proceeds. If the trees are on the Paradise or Quince stock this is often very successful, the trees forming abundance of fibres in the new soil and making new and fruitful growth.

It may be laid down as a rule that the Pear, being a longer-lived tree than the Apple, is more amenable to treatment, though poor varieties of either are not worth the trouble. Pear trees on walls can often be rejuvenated very successfully. The branches may all be cut back to within 6 in of the stem, and the stumps grafted, and the scions will make shoots 3 ft or 4 ft long the first season and fruit buds the second season, the root action of these old Pear trees being very strong. If the tree is a good sort alternate branches may be cut back to within a few inches of the main stem, and one shoot resulting from each trained in, the other shoots being rubbed off early. The following season the remainder may be treated in the same way. Some fruit may be obtained the third year, and that of good quality.

Old worn-out stone fruit trees are not usually amenable to treatment, and it is not worth while taking the risk of failure when young trees bear so quickly. Standard Cherries, however, are seldom past hope, responding quickly to liberal feeding. They may be cut hard back, and resulting young growths selected to remain can be budded in the following July. Plums are sometimes successful in this way, but much depends upon the soil and situation. As a rule the most that is worth trying with the branches of stone fruit trees is to cut out the oldest and weakest wood, and, if healthy, growth results, to make use of it, or, if not, to do away with the tree. The cutting out is best done in late August or early September, so that the wounds may heal over while the leaves are still on the tree.

The feeding of the trees is no less important than the treatment of the branches. Where trees have stood for thirty or forty years the soil within reach of the roots must necessarily be getting exhausted unless the trees are strong-growing standards. Especially will this be the case where the trees have been neglected all the year except at fruit-picking time. The feeding of standards in the garden is not easy, as the roots reach so far, and no one can tell whereabouts the best feeding roots are. Where they have the run of the vegetable quarters it is rarely that feeding produces any effect, as they have already had sufficient food within reach, but if the trees are thinned out well, or headed back, they generally make sufficient growth if not past all hope. With dwarf trees it is otherwise, and good feeding will often give good results. Stone fruit trees, especially, need lime—as do all fruit trees more or less—and unless the soil rests on chalk, or is of a very chalky nature, it is pretty safe to apply this, five to ten pounds of slaked lime, or twenty to thirty pounds of chalk, to twenty square yards being a fair dressing. Whether lime is applied or not, kainit should be put on in the autumn at the rate of two to three pounds to twenty square yards, and if the soil is deficient in chalk basic slag at the same time at the same rate, or, if the soil is rich in chalk, superphosphate of lime at the same rate in the spring.

One of the best dressings for fruit trees generally on any soil is bonemeal or steamed bone flour, which may be applied in the autumn at the rate of two pounds to twenty square yards. It is rich in both lime and phosphate, and should contain from one to three per cent. of nitrogen. All these manures are best if lightly hoed in the surface soil. The trees should be given a mulch of manure in the late spring or early summer, the aim being to encourage the formation of surface-feeding roots and to keep them near the surface. Some of the old soil round the roots may be removed and the roots unearthed and brought nearer the surface if too deep down. Then if a top-dressing of good loam and rotted manure be applied they will root in it freely, much to the improvement of the health of the trees. The aim must be to give the trees a good start in the spring. If the growth is still feeble nitrate of soda may be applied at intervals of a month during the spring and early summer at the rate of half a pound to the twenty square yards.

As regards bush fruits, old Gooseberry bushes should be destroyed and new ones put in, as a worn-out Gooseberry tree is never of any use. Red and White Currants often bear well as long as there is a piece of tree left, but there is no means of rejuvenating them. Black Currants, however, are seldom past hope, a severe pruning down to the ground leaving nothing but the current season's growth, combined with a top-dressing in the autumn of good rich soil mixed with some kainit and basic slag, followed by some nitrate of soda in the spring and summer, often working wonders. Raspberry canes, so long as there are stools of some sort on the plantation, will often respond well to the same treatment. Both Black Currants and Raspberries make a mass of surface-feeding fibrous roots, and therefore no digging should be done near them, though the surface soil may be taken off lightly if some good rich stuff is going to be put in its place.

—A. PETTS.

Seed and Soil Inoculation.

In his recently published brochure, Prof. Bottomley justly credits Sir William Crookes with calling attention to the danger of a nitrogen famine in agriculture, and predicting that within thirty or forty years there would be a general starvation among the bread-eating nations, owing to the exhaustion of the nitrogen of the soil, unless some means were devised for procuring more nitrogen for the cultivation of wheat. But the abstraction of nitrogen from the atmosphere by electrical and chemical energy under the initiation of Sir William Crookes is not referred to, as was recently done in the *Journal of Horticulture* and elsewhere, the present work being confined to its abstraction by leguminous plants. This is treated as the greatest discovery of the age, though the importance of alternating cereal with leguminous crops was known to the ancient Romans, and it is only in recent years that science has revealed and explained the agency through which the free nitrogen of the atmosphere is fixed by the Leguminosae.

The data of soil exhaustion by wheat cropping in respect of the all-important elements—nitrogen, phosphorus, and potassium—are taken from American analyses, by which it is shown that "the first eight inches of surface soil contained per acre 2,600 pounds of nitrogen, 4,800 pounds of phosphoric acid, and 13,400 pounds of potash. A yield of fourteen bushels of wheat per acre (said to be the average yield in America) would remove 29.7 pounds of nitrogen, 9.5 pounds of phosphoric acid, and 13.7 pounds of potash. If all the potential nitrogen, phosphoric acid, and potash present in the first 8 in of average soil could be rendered available, there would be enough nitrogen to last ninety years, enough phosphoric acid for 500 years, and enough potash for 1,000 years. It is, however, impossible for the farmer to render all this potential food material available, hence it is quite possible for a soil to be rich in potential food elements yet produce barren results."

In the light of this we may compare British wheat cultivation with American. The "Agricultural Returns of Great Britain" (1907) give the yields of wheat for England as 33.97 bushels per acre; Wales, 27.65; and Scotland, 39.15; that for Great Britain being 33.59 bushels per acre, and the average for the ten years 1897-1906, 31.22 bushels per acre, or nearly double the average of wheat production per acre of the virgin American soil. British soil was renowned in the time of Agricola, and has been ever since when the chase and war, the two deadliest foes of agriculture, admitted of peaceful and thorough cultivation. For well nigh 2,000 years British soil has produced wheat, and even now gives a yield of the "staff of life" double that of the American virgin loams. What inoculation or nitrogen abstraction from the atmosphere occurred before the introduction of Clover into England as a field crop in 1645 by Sir Richard Weston, author of "A Discourse on the Husbandry of Brabant and Flanders"? Of course, there was the native White (*Trifolium repens*) and Suck-

ling (T. minus), together with the Bean and Pea, Vetch, &c., and not least the fallows, abstracting the free nitrogen of the atmosphere and fixing it all unknown to the cultivators for the use of future crops, aided by judicious "liming."

The author alludes to Pliny as writing: "The Bean ranks first among the legumes. It fertilises the ground in which it has been sown as well as any manure"; and also mentions that the meaning of this was not well understood until 1886, when Helriegel demonstrated that these plants somehow obtain their nitrogen from the atmosphere, and their growth in soil free from nitrogen compounds depends upon the presence of the nodules upon their roots. This is followed up through the investigations in 1887 of Prof. Marshall Ward; in 1888 of Beyerinck, who obtained a pure culture of the root-tubercle organism on artificial media, and named it *Bacillus radicicola*; of Prazmowski in 1890, who succeeded in inoculating the roots of Bean plants growing in sterilised soils, and obtaining luxuriant growth by simply watering the plants with a liquid culture of the organism. Reference is also made to Prof. Nobbe's manufacture of "nitrogen," and of its not proving a success. The secret of its failure and that of successful practise-ment was reserved for the United States Department of Agriculture in 1901, and the matter is wound up by the Report of the Board of Agriculture on experiments conducted in Great Britain, and after this the matter rests between the Botanical Laboratory, King's College, London, and the New York Experimental Station.

The writer treats of the application of the—I fail to find the name—"Nitro-culture" article, and also its results, as sequence of the experiments obtained in 1905 by the Board of Agriculture and Fisheries through the co-operation of thirteen different agricultural colleges and experimental stations with a view of testing the cultures, the results of which were published in the "Journal of the Board of Agriculture" for February, 1906, showing that "the negative results exceed the positive in number both in plot experiments and under agricultural conditions." The important question of inoculation of leguminous crops is settled as far as the Board of Agriculture is concerned. But the author gives reports of the favourable, withholding those of the unfavourable. This has the aspect of a business man anxious to rivet attention on the "Nitro-Culture" Company, which supplies packages of culture material at 10s. with agents in this country, also who supply "quart" packages for 7s. 6d. The names of the agents, however, are not given. The author, moreover, appears to regret that the Government of this country is not disposed to take up the manufacture and distribution of the culture material, even though the results of the two years' work at King's College be offered to them free, if they will continue the work. This our author tells us is to prevent the manufacture and distribution of the article getting into the hands of the company financiers, whose sole object would be to exploit agriculture in the interests of large dividends. This is clearly the object of the American and German cultures of nitro-bacteroides. "Even run on commercial lines and paying a good percentage on the capital necessary to run the business," says the author of "Seed and Soil Inoculation for Leguminous Crops," "the 'gallon' packages could be sold for about 3s. each, whereas the American material now sold in this country costs 30s. for a 'gallon.'" Thus our author re-establishes his patriotism, and we regret with him that the Board of Agriculture has neither the machinery nor the money to undertake the work, though we differ entirely from the author's reasons in respect of the inoculation necessary of the twenty-one million acres of poor barren land in this country. From experience we have seen this on the north Yorkshire moorland to be altogether unnecessary. Nevertheless, the author hits the right nail on the head when he refers to a top-dressing of a mixture of kainit and superphosphate at the rate of 5 cwt. per acre, applied to heath land giving as good results as regards growth of Clover and rotation grasses as may anywhere be found by sowing ordinary seed uninoculated by *Bacillus radicicola*.

"If the waste places of this country can be thus converted into fertile soil by means of inoculation, surely the subject is worthy the serious attention of our Government." We agree, if only to get experiments made on moorlands, but the more practical way, and, indeed, all-important way, is thorough reclamation by breaking up, burning off the heather and scrub, then mixing the top and bottom soil together, i.e., the obliterating of the moor-pan, then top-dressing with basic slag, say 1 ton per acre, and kainit, say 5 cwt. This being done in autumn, and with a livener of superphosphate in spring, the land will grow cereal crops suitable to the location perfectly, and the Clover and rotation grasses sown therewith will thrive splendidly for a time, or until the land is "Clover sick," this being the greatest drawback to the former obtaining nitrogen cheaply. The Government have been wise in making a grant to the Rothamsted Experiment Institution in order to fathom this mystery, and if possible supply a remedy for the disease.

—A. B.

(To be continued.)

Societies.

Royal Meteorological.

SNOW ROLLERS.

The monthly meeting of this society was held on Wednesday evening, the 19th inst., at the Institution of Civil Engineers, Great George Street, Westminster, Dr. H. R. Mill, president, in the chair. Mr. C. Browett read a paper describing the formation of "Snow Rollers," which he observed at Ryton-on-Dunsmore, near Coventry, on January 29 and 30, 1907. There had been some snow showers during the afternoon and evening, amounting to a depth of about 1½ in. The next morning he noticed that the snow on the lawn to the east of the house was heaped up as though someone had run with a spade in front of him. The snow was cleared away to the bare grass (except for slight bars of snow across) in tadpole-like markings, whose tails all pointed in the direction from whence the wind had been blowing all night, viz., north north-west, and at whose heads was heaped up the snow that had been on the bare grass, all neatly turned over in a roll. A few markings only were seen on the other lawns, and none at all in a field to the north; but on the drive and grass in front of the north side of the house there were markings in the opposite direction, but with little snow actually curled up. These were evidently caused by the deflection of the wind from the sides of the house. The temperature during the night ranged between 32deg and 34deg. A number of extracts giving descriptions of similar phenomena observed elsewhere were appended to the paper. It seems that the flakes of a light fluffy layer of surface snow are made adhesive by a rise in the temperature of the air above the freezing point, while the under-snow remains cold and dry, and the particles of damp surface snow are enabled to adhere to each other, but not to the dry under-snow. A strong wind may then push over little projections of the surface snow, and start them rolling, when, of course, they will travel and grow until the resistances overcome the propelling power of the wind. These "snow rollers" vary in size, some being only a few inches in diameter, while at times others have been seen 2ft or more in length.

BAROMETRICAL READINGS.

A paper by Mr. Ernest Gold, on a "Comparison of Ships' Barometer Readings with Those Deduced from Land Observations," was also read. This contained the result of a preliminary investigation undertaken at the Meteorological Office into the relation between the barometer readings taken on ships during their passage across a line between Falmouth and Brest, and the readings deduced for the ships' positions from the observations at these places and the trend of the isobars, on the assumption of regular pressure changes. Mr. Gold concluded by saying that taking into account the various causes which can appreciably influence the height of the barometer on board ship, we are impelled to say that until the two chief ones—the wind and the vertical acceleration effects—are eliminated, it will be impossible to draw any satisfactory conclusions regarding the relative values of atmospheric pressure over sea and land. One can say in general that there appears to be a tendency for the barometric pressure to be lower between Falmouth and Brest than would be expected from the land observations.

Cardiff Gardeners'.

FORESTRY.

The fortnightly meeting of the Cardiff Gardeners' Society took place on Tuesday, February 18, at the Philharmonic Restaurant, when Mr. R. T. Went, head forester to the Marquis of Bute, read a paper on "Forestry." The lecturer dealt with his subject in a masterly manner, giving some very interesting and practical information. The lecturer in his remarks pointed out that more interest was being taken in forestry each year, and strongly advised the young gardeners to study the subject, which, in some respects, was closely akin to gardening. He felt sure that forestry would be of the greatest national importance in the future. A vote of thanks terminated a most enjoyable and instructive evening.—F.

Guildford (Surrey) Gardeners'

VEGETABLES.

At the fortnightly meeting of the association held on Tuesday, February 18, fifty-seven members assembled under the presidency of Mr. W. Hogsden to hear a lecture by Mr. W. Seaman, representative of the Redhill, Reigate and District Gardeners' Association, on "Vegetables for Exhibition." Mr. Seaman strongly urged the importance of deep cultivation, and recommended that in order to produce the best results the ground for vegetable culture should be well trenched in the late autumn and winter. The subjects dealt with by the lecturer were Potatoes, Onions, Carrots, Cauliflowers, Peas, Beans, Tomatoes, Vegetable Marrows, Brussel Sprouts, and Celery. A



Approach to Lauderdale House, Waterlow Park, N.
See "GARDEN ORNAMENTS."

capital discussion followed, and a hearty vote of thanks was given to Mr. Seaman for his very able and practical lecture. Certificates of merit were awarded to a group of Primulas and Freesias exhibited by Mr. G. Johnson; also to a group of large flowered Cinerarias exhibited by Mr. H. Watkinson.—J. G.

Beckenham (Kent) Horticultural.

HARDY PLANTS.

On Friday, the 15th inst., Mr. J. R. Pocock, of College Nurseries, Bromley (the Rev. G. O. Griffiths presiding) gave a lecture on "Hardy and Rock Plants." After speaking at some length on the construction of rock work, the way and time to plant, soils to use, &c., the lecturer having about a hundred specimens in pots in the body of the hall, took them individually, pointing out their types and varieties, their rarity or otherwise, ease of propagation, or vice versa, also their prices as governed by that. He advised to plant very firm indeed, and not to split up choice plants after midsummer, as to do so would probably end in loss of them in winter. The very best time to propagate is just as growth is commencing. The lecturer humorously remarked that all plants like to be looked at, with one exception, as far as he knew, and that the field Mushroom, for as sure as anyone looked at that it disappeared. A hearty vote of thanks to Mr. Pocock and the rev. chairman closed the very instructive evening.—T. C.

Crawley (Sussex) Gardeners'.

ANNUAL REPORT.

The annual meeting of the Crawley and District Gardeners' Mutual Improvement Association was held at the rooms of the Y.M.C.A. There was an encouraging attendance. Mr. T. H. Martin, J.P., presided, and was supported by Mr. Alec Cheal. The hon. secretary, Mr. H. Hemsley, read the annual report and balance sheet, which were approved, the chairman complimenting the association upon having had a very successful year. The officers of the association were re-elected en bloc—a tribute to their past services. Mr. R. H. Holton was elected vice-chairman of committee. Mr. H. Hemsley was elected hon. financial secretary, with special compliments for excellent work in the past, and Mr. W. Shepherd was elected as assistant hon. secretary. Mr. Hemsley mentioned that Mr. and Mrs. E. B. Lehmann, of Ifield Lodge, had kindly consented to allow this year's exhibition in their grounds, and that the exhibition would be on very similar lines to that held last year. The probable date was Wednesday, July 22. A number of special prizes had already been offered. On the proposition of Mr. Alec Cheal, a hearty vote of thanks was accorded the chairman for presiding. Mr. Dowsett, gardener to Mr. Victor Silberberg, of Manor House, showed a fine specimen Dendrobium in full bloom, for which he was awarded a first class certificate of merit. A similar award was made to Mr. Seymour, gardener to Mr. Fox, The Old Rectory, Ifield, for three Marguerites.

Redhill and Reigate Gardeners'.

PLANT NAMES.

Mr. Bound, chairman of the above society, presided at a special meeting held on Saturday evening, February 22, at

Mutton's Hotel, Redhill, when Mr. N. E. Brown, of Kew, gave a very interesting lecture on the proper pronunciation of certain names of plants commonly used by gardeners. Owing to the stormy weather the meeting was not so well attended as usual. Mr. Bound, in opening the meeting, said he had been looking forward to Mr. Brown's visit, and he had come, as he expected had most of the other members present, to receive a good lesson. Mr. Brown, at the beginning of his lecture, said that he was not a linguist by a long way, but he would do his best to make himself interesting. Aided by a blackboard and chalk, Mr. Brown began his lecture by explaining the use of Greek and Latin roots, and the difference of the long and short vowels. Some amusement was caused by the lecturer asking the members to pronounce some of the names he had written. The lecture was very instructive, and was much appreciated. The chairman moved a most hearty vote of thanks to Mr. Brown, and said it was one of the best lectures he had had the pleasure of attending. Mr. Rose seconded the vote of thanks, saying he was sure the members would be glad to have Mr. Brown in Redhill whenever he found it convenient to come. The lecturer, in thanking the members, said he should be very glad to come to Redhill at some future date. In conclusion, he had made a list of what he considered the most difficult plant names; this he would leave with the secretary for the benefit of the society.—CLARKE STEVENSON.

Egham (Surrey) Gardeners'.

The third annual dinner of the Egham and District Gardeners' Association was held at the Constitutional Hall on Thursday evening, Mr. C. H. Austin, of Woodlands, Englefield Green, presiding over a company of about 140. The chairman, in proposing the toast of the evening, expressed regret that the president, Mr. W. G. Rigden, was prevented attending, and congratulated the association on an increased membership, and that its finances were on a firm basis. Mr. Record responded, and the other toasts included "The Hon. Members," proposed by Mr. Swan, and responded to by Mr. Evered; "Kindred Societies," given by Mr. W. Sturt, and acknowledged by Mr. James; "The Trade of Egham," "Officers and Committee," &c.

Garden Ornaments.

See "APPROACH TO LAUDERDALE HOUSE."

No one will surely contravene the statement that garden steps in their many forms are ornamental garden features. Of course, they are utilitarian, since they are in many places a necessity; but beyond that they are objects in the general plan of the garden at once of beauty and interest. On terraced or sloping ground, and particularly where such ground descends to a lake or water basin, the garden artist nearly always introduces them. Chatsworth and the Crystal Palace have spacious flights of steps, not all of which are necessary as mere means of ascent or descent, but in order to carry out the idea of breadth, "balance," and spaciousness in unison with the building behind. Cramping an entrance-way looks mean; enlarging it—making it wide and open—looks gracious and inviting. In the view of a small approach to Lauderdale House, which is one of the seemingly numerous houses accorded at one time or another as a residence for Nell Gwynne, a mistress of Charles II., the eagles are pretty, but the crouching lions or dogs that one sometimes sees in such places are certainly more in keeping. The eagles should adorn the top of pedestals at the entrance to gateways.

In making steps—which may have considerable variety in detail—the size of step should be taken into account. A tread of 13in in width is found to be very suitable, and a riser of 6in. Steps may also be square in front, or spreading in a semi-circle, or of octagon form, as suits the local circumstances.

Lauderdale House, in Waterlow Park, London, was built in the year 1600 for the Duke of Lauderdale, a Minister of State, a man of bad repute and generally detested. He is said to have turned traitor to his master, King Charles the First, and helped to betray him. On the restoration of the Stuarts he pandered to Charles II. and while he (the Duke) was away persecuting the Presbyterians with the bigotry of the age the King had the use of Lauderdale House. History has it that the King borrowed the house. It did not always follow in those days that when one person, especially a King Charles, borrowed anything that the owner had lent it. Anyhow, while the Duke of Lauderdale was away King Charles used the house, and he used it for the accommodation of one of his many lady loves.

Lauderdale House was purchased by Sir Sydney Waterlow,

nearly thirty years ago, of a Gloucestershire family—it had previously been occupied by Lord Westbury and family—afterwards by Mr. Yates, who so ardently advocated the agitation for a decimal system of coinage, weights and measures. After his death Sir Sydney acquired the property, converted and fitted the house as a temporary convalescent home, in connection with St. Bartholomew's Hospital, which was opened by their Royal Highnesses the Prince and Princess of Wales in June, 1873, and was so used for about thirteen years until the hospital had obtained larger premises.

A Private Fire Station.

The picturesque little building in the photograph represents the estate fire station at Mr. T. Fenwick Harrison's seat, King's Walden Bury, Hitchin. Mr. T. J. Hartless, the present head gardener, writes:—"When I came here, sixteen years ago, I found the late head gardener had been using the building for his lodgings; he, being single, boarded in the house. Previous to that it was used as a dairy. Ultimately we turned it into a fire station. There are two rooms, about 14ft square and 10ft high to ceiling. The twelve lengths of hose are kept neatly done up in one room, with other various things, and the engine in the other. Just outside the door is an underground tank supplied by a 6in pipe connected to the small lake close by. On turning the valve, water comes quite fast enough to keep the engine going at full speed. The engine is one of Merryweathers'—size about 7ft by 4ft, by 7ft 6in high. I do not know its power, but it was sufficient to prevent the mansion from being burnt down very soon after we had it. The fire occurred in January, four years ago, during a very rough and dense dark, wet night. Although we had but one hour's training we got the engine to work, throwing water into the rooms within twenty-five minutes from the call by fire bell. We were highly praised by the captain and staff of the Hitchin brigade, who arrived here twenty minutes after we got the fire fully under control. In another ten minutes the fire would have found its way through the roof, and then no three engines would have prevented the mansion from being burnt down, the wind being so very high. Although £1,000 damage was done, we saved at least £30,000 worth, so the station has been useful as well as ornamental. The brigade consists of gardeners, carpenters, stablemen, and others on the estate. Mr. T. Fenwick Harrison is the captain, and myself sub-captain. Last year we added another security in case of fire—a very fine water tower, with a large tank, holding about 15,000 gallons of water, to supply the gardens and stables. Fire plugs have been put down around the mansion, stables, and other buildings. Immediately the alarm is given the hoses are placed in position, and the water from the tank is of sufficient force to cover everywhere necessary. There is also an oil engine which can be used for pumping direct into the mains in case of fire, or filling the tank as required. The oil engine can be started in about five minutes, and the steam Merryweather fire engine in five to eight minutes."



Fire Station at King's Walden Bury.

Microscopic Gardening.*

(Continued from page 168).

The first record I can find of microscopic gardening which applies to the culture of parasitic fungi, is due to an Englishman named Marshall, who in 1782 tested the belief that Barberry bushes were in some way responsible for the rust of Wheat, and found that the Wheat was rusted in proportion to its proximity to the plants.

It is true Marshall knew nothing of the nature of the fungus, and that his experiment can at best be compared to one where we prepare a bed near some weeds and see what will come; but I think this Norfolk gentleman should have his memory credited with the honour due to a scientific idea, for it was a scientific experiment in agriculture on a microscopic scale.

Willdenow in 1804 went a step further, and streaked the yellow spores of the Barberry fungus on the leaves of a grass and some other plants; and Hornemann in 1814 dusted the spores on leaves of Wheat, Rye, and other cereals. Gmelin had named the fungus on the Barberry in 1786, and Persoon those on the Wheat in 1797 to 1801, but it is evident that no clear ideas as to their nature were then possible, and we must look upon the experiments as not so much definite attempts to grow microscopic plants, as rather the exposure of the selected seed beds (the leaves) to mysterious influences to see what would come. In most cases nothing came; but in 1816 Schöler, and in 1818 Bönninghausen, did infect grass leaves by dusting them with the Barberry rust.

In 1864 we meet with a very different case when De Bary not only sowed the spores of Wheat rust on the Barberry, and obtained a crop of Barberry rust, but he observed the germination of the spores and ingrowth of the fungus on the leaves themselves. De Bary had already in 1861 observed the entrance of the germ-tube of *Phytophthora* into the Potato plant—the first direct proof of such infection. Here we may compare the method with that where we not only prepare a proper sowing bed, and sow seeds on it which we have reason to believe may germinate and produce a crop, but to make sure that it is really the seeds we have sown which produce the crop, we take up the germinating seeds at intervals and study their growth stage by stage. We are apt to forget the importance of this, and to overlook the fact that if it were necessary to justify our assertion that a grain of Wheat gives rise to a Wheat-plant when sown, exactly the same rigid procedure would be demanded, and if we remember that prior to 1848 the prothallus of the fern was regarded as its cotyledon, it comes home to us how necessary strict methods are in microscopic gardening, even with relatively large plants.

De Bary, by the application of his new mode of microscopic gardening, demonstrated two facts—the entrance of the germ-tube of the parasite into the host-plant, and the wonderful phenomenon of Heterocism—that is to say, a parasite growing in the tissues of one host-plant, such as a grass, develops in one way, but in the tissues of another plant, such as the Barberry, it produces quite a different fungus; and every year since has served to confirm the accuracy of his results.

Oersted in 1865 showed by a similar method of microscopic gardening that the *Gymnosporangium* on the Juniper, if sown on the leaves of a Pear, develop into quite a different fungus called *Roestelia*, and similar observations have been repeated over and over again by such excellent microscopic gardeners as Mr. Plowright, the late Major Barclay, Mr. Soppit, and others—indeed, we have some reason to be proud of our countrymen as microscopic gardeners in this direction.

The methods of culture just referred to can evidently be best compared with the sowing of seeds in specially selected or prepared beds; but there is another way of conducting the microscopic gardening operations with these parasitic plants, first introduced, I believe, by Robert Hartig in 1878. In cases where a parasitic fungus is growing in the wood of a tree, a piece of the infected wood is cut out by a boring tool, and inserted into the wood of a sound tree; the fungus here grows, just as does the mycelium of a Mushroom when the "spawn" is put into a properly prepared bed. In these cases we may compare the operation to that of transplanting or bedding-out cuttings, rhizomes, stools, bulbs, &c., in contrast to that of seed sowing, and some very valuable results have been obtained by this method of culture.

The application of De Bary's methods to the study of parasites of the grasses and cereals has yielded some very remarkable results of late years, especially at the hands of Eriksson and Henning. These experimenters have examined the behaviour of rust on 105 species of grasses, and has found that just as we have varieties and races of the higher plants, so with

* By the late H. Marshall Ward, D.Sc., F.R.S., before the Royal Horticultural Society, 1897.

distinct varieties which behave very curiously. For instance, the variety which infects the Barley will not infect Oats or Wheat, but will grow on Rye and Twitch; that on Oats refuses to infect Wheat, and conversely; that on *Aira caespitosa* is different again, and so is that on *Poa*. Nevertheless, all these form-species or varieties will grow on the Barberry, and since they are practically indistinguishable under the microscope we are driven to the conclusion that it is owing to some influence of the host-plant on the physiology of the fungus that it has thus become specialised in its parasitism.

If these were the only cases where the fungus is found to have become so closely adapted to the conditions of its natural seed bed, I might be tempted to pass over the matter as too speculative to bring before you; but it is not so, for, in addition to other species of *Puccinia*, we know that such specialisation applies to an *Aecidium* on the Spruce, as De Bary found in 1879, to a *Peridermium* on the Pine, as Klebahn showed in 1892, to several forms of *Gymnosporangium* on Junipers, as Mr. Plowright has shown, as well as other observers; and to *Ustilago*, according to recent researches by Swingle and others. That we are here face to face with phenomena of the same order as those where races or varieties of yeasts are formed by cultivation, and of bacteria by variations in the conditions, may safely be asserted; but I would go further than this, for it seems to me that the phenomena also come into the same category as the variation of plants like the Cabbage, Indian Corn, Wheat, Potatoes, &c., on the one hand, and the specialisation of the pollen in heterostyled and other flowers to certain stigmas, on the other.

(To be continued.)

A Selection from our Apple Election.

Our readers may wonder why we have repeatedly, of late, inserted this selection of Apple varieties. The reason is that too little is known as to which are the best kinds; and to readers who may have once or oftener failed to duly mark this list—selected by seventy of the best British fruit growers—another opportunity is presented. We shall not publish it again until the autumn.

DESSERT VARIETIES.

Name.	Season.
Beauty of Bath	July and August.
Mr. Gladstone	Mid-July and August.
Devonshire Quarrenden	August and September.
Lady Sudeley	August and September.
Irish Peach	Early August.
Worcestershire Pearmain ..	September and October.
James Grieve	September to November.
Mother Apple	October.
Margil	October and November.
*King of the Pippins	October to February.
Adam's Pearmain	November to January.
Mannington's Pearmain ...	November to February.
*Cox's Orange Pippin	November to April.
Allington Pippin	November to February.
*Blenheim Orange	November to February.
*Ribston Pippin	November to February.
*Claygate Pearmain	January to March.
Scarlet Nonpareil	January to April.
Sturmer Pippin	March to June.

CULINARY VARIETIES.

Name.	Season.
Lord Grosvenor	August and September.
Lord Suffield	August and early September.
*Poita Seedling	August and September.
Ecklinville Seedling	September and October.
Stirling Castle	September.
Grenadier	October.
*Warner's King	October and November.
Bismarck	October and November.
Peasgood's Nonesuch	October to December.
Tower of Glamis	October to December.
Newton Wonder	November to May.
Lane's Prince Albert	November to April.
*Blenheim Orange	November to February.
Lord Derby	November and December.
Golden Noble	November to January.
Norfolk Beauty	December and January.
Bramley's Seedling	December to April.
*Dumelow's Seedling (Wellington)	December to June.
Alfriston	January to March.
Annie Elizabeth	March and April.

* Subject to canker.

TREES FOR MARKET PURPOSES.

Trees and bushes that are "drawn," i.e., lifted in the autumn before the end of the year and laid-in, will be safe for another month to come. A very little reasoning will show how this comes about. The keen eye will see that not only are the broken roots and rootlets well callused over, but are actually making new roots from the laid-in trees. Trees now lifted receive a check, and are later in starting. Thousands of trees will yet be planted. Only to-day, February 22, I was consulted as to price per hundred, for the planting.—STEPHEN CASTLE.

Young Gardeners' Domain.

* * The prize is awarded to Mr. Cave. Honourable mention is accorded to Mr. C. Lenton.

Should Plants in the Rock Garden be Labelled?

My reasons for writing on this subject are owing to the fact that, while reading an article on the "Rock Garden" in a well-known weekly horticultural journal, I came across the following passage:—"Labels should never be seen in the true rock garden, they are destructive of all pictorial effect and damping to the sentiment of the truest enjoyment of plant beauty." Now, to my mind, this is a wrong impression. Admitted labels are not natural, but in Nature plants are not put so many of different sorts together; neither does Nature want to take one thing out and put another in its place, as is so often the case with the owner of a rock garden. If plants are not labelled in some way, what endless trouble it causes during alterations. Then I look at the case in another light. How is the beginner to learn if the plants have no names to them? It is very well to say, Let him ask someone who does know. Very often that someone is not handy, and the young starter gets tired of asking the name of every little plant he sees, and in some cases the questioned gets tired too; whereas if the plants were kept properly named it would be the means of the lad taking an interest in his work. No matter where one goes, new things meet the eye, and if they come under one's charge and are not labelled, how is one to know how to treat them? The chances are that the plant gets a treatment entirely unsuited to it. If the name were there one could look up one's books, and find what was needed. A "reserve garden," where everything was labelled, would do away with a lot of the inconvenience no doubt, but in the case of very rare plants, there is not always enough for the reserve and the rock garden proper. Besides, how many times have we heard the remark, What a pity that lovely plant is not labelled! No, I think it is not only beneficial to the professional man, but to the owner as well, that all plants should have their names at least attached to them. Of course, as in most things, it is carried to excess; but carried out in a thoughtful workmanlike way (and with the numerous patterns of labels on sale, it is no trouble comparatively), it has not to my idea the bad effect mentioned in the passage quoted. To give one or two places of note that I have seen, and where labelling is carried out: at the late Lord Battersea's Norfolk home, almost everything during the time I was there had to be labelled when planted; and as is well known, these grounds were the delight of many who visited, both professionals and amateurs. Again, at Sutton Place, Guildford, and I am very pleased to say that it is the case here as well.—F. CAVE, Holker Gardens, Cark-in-Cartmel, Lancashire.

Tortworth Court.

In response to an invitation from Mr. Banting, the head gardener to Earl Ducie, at Tortworth Court, Gloucestershire, I journeyed to the wayside station of Charfield, and a pleasant walk of about two miles brought me to Tortworth. The Court itself is a very imposing pile, situated on an hill overlooking a valley of great beauty. The grounds are extensive, and well maintained. Without doubt the greatest feature of the place is an extensive arboretum. Words fail to express the beautiful effect of this part of the grounds. The arboretum is situated on a high bank, sloping in an uneven manner down to the edge of a lake. In it are to be found some of the finest specimens of rare trees and shrubs in Great Britain. To add to the value of this part as a centre for instruction, every tree or shrub is named, and in most cases the date of introduction and also its native place are given. Mr. Banting remarked that he thought it a great pity that young gardeners do not take more interest in this important branch of gardening. He deemed the practice of taking down the names of the various trees in a pocket-book one of great value. His noble employer takes great interest in this branch, and is continually adding to his already large collection. He does not confine himself to planting rare trees in the grounds, but has many scarce varieties planted about the park. By this means he is able to find out whether a tree is useful for timber or for cover.

Passing on to the herbaceous plant borders, I found they contained subjects useful for decorative purposes. The next department we passed through was the kitchen garden, which was well stocked with winter stuff. Fruit trees of all descriptions appeared to be in good health, and free from pests. The glass, or rather inside department, though not very extensive, was well stocked with healthy plants. At the time of my visit, which was in November, the late vinery was full of bunches of high merit; and the plant houses were filled with the usual subjects. In one of the stoves a batch of about one hundred and fifty Poinsettias gave great promise of a fine display a little later on. The conservatory, which is a fine structure, looked gay *Puccinia graminis*, the fungus of Wheat rust, there are several

with Chrysanthemums and an exceptionally fine strain of Cyclamens. The most important inmate of this house is undoubtedly a fine specimen of a *Diospyros Kaki*, the Persimmon (a very uncommon subject), in fruit. The fruit is deep yellow in colour, about the size of an ordinary orange. It is covered with a thick bloom, which gives it an imposing appearance.

Though this is a feeble attempt to describe this place, I hope the reader will gain some idea of Tortworth Court.—CHARLES LENTON, Bryanston Gardens.

Japanese Dwarf Trees and Shrubs.

Apparently these subjects are not grown in many places, or we would read more about them in gardening papers. The treatment these want is not to get at all dry in the summer, nor too wet through the winter months. As the days lengthen they will need more water, but as they do not want to be grown-on, but only to exist, as one may say, they will want practically no stimulants. They will almost take water every day in hot dry days in summer, but much depends on the aspect they occupy. If they are in the full sun of course they will dry much quicker, therefore water them accordingly. An occasional drop of manure water or a little fertiliser sprinkled on the top of the soil will help. A suitable situation is where they only get the afternoon sun. They look well arranged collectively or dotted about in the rock garden. Never place them at draughty corners where the wind sweeps round, or they will soon show brown at the tips. They also are liable to be blown over, and some of the branches may be broken off; and if the pots are broken you will find it a difficult matter to find another to fit. Through the winter months they will need accommodating where the frost will not penetrate. This is in order to protect the receptacles containing them. Being full of roots they are easily cracked, especially those of glazed earthenware. If taken into a winter garden, place them where they will get plenty of light until weather permits them being brought out again. If occasion may happen to give these a shift to keep them from degenerating, see that the least possible is given, using loam with a little sand for the purpose. Give a dash of sand over the top to finish off. One of the finest I ever saw was a *Thuya obtusa* upwards of 200 years old. It was just over a yard in height, well furnished down to the bottom of stem. I give this as an example how dwarf they may be kept. The different kinds of *Acers*, *Bays*, and *conifers*, if grown dwarf in tubs, may remain outside all the year round without any protection. As a departure from the ordinary way of using flowering and foliage plants on the dining room tables, a small one of the above may be used, and will prove very pleasing in conjunction with autumn tinted foliage.—C. F. C., Sandy, Beds.

Food and Fibre Producing Subjects.

It is interesting to note the important part certain members of the Vegetable Kingdom play in contributing food and other articles for the use of mankind. The Banana (*Musa sapientum*), a plant cultivated almost everywhere in the tropics, under a number of forms for its fruit, &c., which is imported into England in enormous quantities, is among the foremost. A valuable fibre is obtained both from the stems and petioles of the leaves, and ropes, cordage, paper, and even handkerchiefs are made from it. *Musa textilis* is the source of a valuable fibre imported in large quantities into England from the Philippine Islands, commercially known as manilla hemp, used for cordage and ropes. In India, China, and the East Indian Islands the culture of the Banana dates from extreme antiquity. It has been described by ancient writers as the "Fig of Paradise," which name had its origin in a notion that it was the Forbidden Fruit.

The well-known Coconut (*Cocos nucifera*) is the most important of all the palms. Its home seems to be Southern Asia, where it attains a most majestic form, growing 60ft to 100ft high, and 1ft to 2ft in diameter. It is a sea-loving palm, and gives character to the islands of the Pacific, where it is found bordering the low shores. The nuts form an important article of food for man and animals in its native habitat. The strong fibrous husk, which covers the nut, is much used for matting and brush making, as well as for ropes; and oil is expressed from the dried kernel or copra. The wood is imported into Europe under the name of percupine wood, and is used for making articles of furniture. Another very important palm is *Phoenix dactylifera*, the Date-palm, whose fruit is very common in our markets. To the desert tribes of Northern Africa and the Sahara it is invaluable, the fruit being the common food of them and their cattle, while the huts and houses are chiefly constructed of Date wood, and a fibre is obtained from the leaves for rope making. It is the leaves of *P. dactylifera* that are used in Southern Europe to decorate the churches on Palm Sunday, and by the Jews at the Feast of the Passover.

The Pineapple (*Ananas sativa*) is a delicious fruit, although not quite so commonly seen. It is a native of the South American continent and islands, from whence it has been distributed to Africa, India, and other parts. The cultivation of

the Pineapple for supplying the markets of Europe is largely carried on in the West Indies, tropical America, the Azores, Straits Settlements, as well as in the Australian Colonies. Tinned Pineapples are exported in very large quantities from Singapore, the Bahamas, Fiji, and Natal. Fibre and very fine textiles are prepared from the rigid, spiny leaves in the Philippine Islands. According to records the first plant was introduced into England by the Earl of Portland from Holland in 1690, but seemed to have died out until introduced a second time at a later date. A Huguenot priest, Jean de Lery, described it three hundred years ago as being of such excellence that the gods might luxuriate upon it, and that it should only be gathered by the hands of Venus.—R. KERR, Mortlake, S.W.



Cause of Dysentery.

ABSOLUTE QUIETUDE NECESSARY IN WINTER.

Now is the period when dysentery makes its appearance if there is any within hives, and contrary to the generally accepted theory, this complaint is not caused by cold alone, but by improper food. Excrement in bee life is not produced by honey or syrup, but by pollen, which is the nitrogenous food of bees. The former produces heat and energy, but the latter produces, or to be more correct, replaces, the wear and tear of tissue, i.e., flesh, &c. To obtain an insight into the active cause of dysentery, or any unusually great signs of evacuation, it is necessary to go to the cause of the consumption of the food which leaves this inordinate residue.

To ensure the benefits of the period of rest and quietude, it is absolutely essential that the bees should have a good supply of stores sealed. Combs during cold weather are altogether unnecessary except as store cupboards, and under normal conditions during late autumn, at the central portion of the combs the cells are all empty, just as evacuated by the bees which have lately hatched; then as the cold weather sets in the bees form upon that portion of the combs the nearest approach to an unbroken cluster possible. Some of them occupy the lower cells, and rest head to head on opposite sides of the centre walls of the combs, while others crowd between. Thus they make the best of the situation as they find it, but careful experiments, conducted over a series of years, have always shown that the bees prefer to cluster in one way, where there are no combs to intersect them, and in this position they maintain that animal heat so necessary for their preservation. We can, therefore, meet them half way, as it were, and while not removing the stores, alternate the heavy combs with empty frames and bring the cluster into a more compact mass, and entirely avoid the probable destruction of either of the outer seams of bees.

Inadequate protection, unusual excitement, such as would be caused by digging around a hive, and shaking the cluster of bees, even a branch of an overhanging tree rubbing the hive, or passing traffic in the road, when sufficiently heavy, will cause the bees to consume more than their natural quantity of food, and this will, of course, leave more residue. The flapping of their wings to maintain heat when they are very cold or exposed to low temperatures overloads the abdomen almost beyond endurance, and they must of necessity have a flight to discharge themselves, or they crawl about inside the hives and have what is termed dysentery.—E. E.

Examining Hives.

Many bee-keepers are too eager to examine their hives, and consequently do more harm than good. If you are convinced that the bees have a good supply of food, then leave them alone at present. Some may ask how they are to be certain that the bees have sufficient food. Every careful bee-keeper would take note of the condition of the hives at the end of last August, and if there was a dearth of food he would feed, and if he knows that every hive had between 20lb and 30lb of food early in October, he may be certain they will not perish yet.—HYBLA.

Trade Catalogues Received.

R. H. Bath, Ltd., Wisbech.—Select Plants and Seeds.

Kent and Brydon, Darlington.—Farm Seeds.

W. Watson and Sons, Ltd., Clontarf Nurseries, Dublin.—Garden Flowers.



Fruit Culture Under Glass.

EARLIEST PEACH HOUSE.—As soon as a good set of fruits has been secured, almost daily attention will be required to regulate the young shoots, and here more care should be exercised, especially with young trees. With healthy trees the shoots have an upward tendency, and get bare at the base. This can, at the start, be avoided by regulating the best placed, so that they fill in the lower portion of the trellis. At the same time crowding of the growths is a bad practice, and one that is by no means [un]common. In some cases allowance can be made with some of the American Peaches, such as Early Alexander and Amsden-June. These often drop their buds when hard forced, and at the disbudding a little more wood may be retained, as these fruit freely on the small growths. Trees that have filled their allotted spaces are more easily managed. Here one shoot at the base and one leader will generally suffice, unless there is any filling-in required. No matter what position they occupy, shoots for future supplies should be taken from the side of the tree at the most convenient place for training-in. All foreright shoots should be removed, and no time be lost in tying in the shoots retained as growth is made.

THINNING THE FRUIT AND FEEDING.—Where the fruits are swelling freely early thinning should follow, and with a free set this is an easy matter. The best placed fruits, say two or three, are retained at equal distances apart. On each shoot a few fruits may with advantage be left in places at all thin, on the under side of the trellis. These will be later than those freely exposed, and will give a succession at the ripening stage, and by the removal of a few leaves they soon colour. The temperature for this house may now be more liberal, 60deg at night in mild weather will be suitable, and 65deg to 70deg by day, and ventilate freely in favourable weather, as with ample sunshine this will build up stout foliage. At the same time close early so that sun heat is retained. This, with liberal supplies of moisture in all parts of the house, will promote clean growth. With old trees, liquid manure should now be given at each watering, but this does not apply to newly planted trees, or those that are inclined to grow at all gross. More fruit may be left on these and food given later on if required.

LATER HOUSES.—Trees just swelling their buds will at this later period do well with more warmth than advised for the first crop; but at the start avoid a high night temperature, and allow a liberal rise by sun heat, and with more warmth green fly often becomes troublesome. If this pest is allowed to spread it will be difficult to get rid of it. Trees just opening their flowers should get a drier atmosphere for a short time, and where the flowers are at all thick, the worst placed may be removed at an early date. The latest trees, even when the houses have been freely ventilated, will soon be swelling, and no time should be lost in cleansing. Before this is done it is well to tie the branches in bundles to save injury to the buds whilst cleansing. In placing the wood in position, do not crowd it, but lay in a goodly amount of new wood, removing any unfruitful or badly placed growths. Clear away the old surface soil, and top-dress with good yellow loam, to which has been added some bonemeal and a liberal addition of wood ashes or old fine mortar rubble.—G. W., Brentford.

The Flower Garden.

HARDY HERBACEOUS PERENNIALS.—The thinning of the young growths on many of the herbaceous plants must shortly be attended to. Much better results are obtained by limiting the number of shoots on each clump, the number varying according to the habit of the plants, and some of the young shoots will be useful for cuttings. Their propagation may be desirable for several reasons: the stock of plants may be limited, or one may wish to increase the numbers of new kinds recently purchased, or to obtain a young stock of plants, the old clumps having deteriorated. With care it will be possible to sever many of the young growths with a few roots attached. These, if placed in shallow boxes, or potted up singly in small pots, will soon make fresh roots in a cold frame if kept close for ten days. By the end of May, or beginning of June, nice plants will be available for the herbaceous border, or they may be planted in the reserve garden, to be again lifted later on, to fill up gaps as they occur in the herbaceous border. We find a supply of such plants extremely useful for putting in after Canterbury Bells, Sweet Williams, and other early-

flowering subjects are over. Notable herbaceous plants which respond readily to this treatment are Asters (Michaelmas, Daisies), herbaceous Phloxes, Sedum spectabile, and Salvia nemorosa.

THE RESERVE GARDEN OR NURSERY.—Having lifted and transferred all the plants required to the beds and borders, the ground must be dug and well manured preparatory to replanting. Cultivators of spring bedding plants on an extensive scale find it advisable to keep back a number of clumps when planting the beds to divide up now, rather than wait till after flowering. Mention may be made of Aubrietia, double Daisies, Saxifraga Wallacei and S. Rhei, Veronica gentianoides, and Armeria maritima alba. Plants propagated in March will be treble the size of those divided about midsummer. Other work also as a rule is not quite so pressing at the first named date.

DAHLIA TUBERS.—Introduce a few roots of each variety into heat to obtain cuttings. Place them on a plunging bed, or close stage, working some light soil, or leaf mould, amongst the tubers. Another method is to put the roots in boxes, placing soil amongst them in the same way. As a rule finer flowers are obtained from plants grown from cuttings than from tubers divided and planted in the open ground. The cuttings root the most readily in a frame on a hotbed; when this is not available, place them in a propagating frame with bottom heat. Anyone on the look out for novelties for home decoration should try a set of the much discussed Pæony-flowered varieties. The plants are free-flowering, and the blooms having long stalks are very suitable for cut flower decoration. The following eight sorts comprise a useful selection: Baron G. de Grancy, white; Duke Henry, red; Glory of Baarn, pink; King Leopold, yellow; Pride of Groenekan, terra-cotta; Germania, red; Queen Wilhelmina, white; Dr. K. W. Van Gorkane, red.

The Kitchen Garden.

VEGETABLE MARROWS IN FRAMES.—Early Vegetable Marrows are much appreciated in most establishments, consequently an effort should be made to secure a few. This is quite a simple matter if a cold frame is at hand. The seed should be sown at once in small pots. One seed in a 3in pot is ample. Place the pots in a little heat, and as soon as the seedling appears place the pot as near the glass as possible in order to prevent the seedling from becoming drawn. If the frame can be placed on a mild hotbed this should be done, but avoid strong heat, as this is unnecessary. As soon as the second leaf appears on the plants, they should be planted in the frame in good loamy soil.

EARLY TURNIPS IN FRAMES.—A sowing of an early variety of Turnip should be made in a cold frame, or better still, in one which has been used for forcing Asparagus. There will be just sufficient heat left in the frame to cause a quick growth without unduly forcing the plants. The seed should be sown very thinly indeed. A few seeds of Radishes may also be sown with the Turnips. The soil should be made quite firm, and should also be rich.

ONIONS.—These should be sown outside without delay, or as soon as the soil is in good order. The raising of plants in boxes has nearly superseded the old plan of sowing in the cold ground in February or March. However, a few rows should always be sown. They come in useful for many purposes. The winter varieties should also now be planted in rows a foot apart.

FRENCH BEANS IN HOTBEDS.—Few vegetables are so much appreciated as these early in the season. They can be grown abundantly in a frame or heated pit, provided there is ample heat. A pit heated by hot-water pipes is preferable, but where this cannot be had, place a three-lighted frame on a well-made hotbed, on which place 8in of good soil, and dibble the Beans in rows 15in apart, and 6in apart in the row. Allow ample head room, therefore use a deep frame.

SEED POTATOES.—The sets intended for seed should now be carefully looked over, and if not already placed in boxes should be attended to at once. The boxes should be made convenient for lifting about, and should have handles on each side. The sets may be placed on one end, and the boxes should be placed in a light cool room where they will sprout slowly. Here they can be attended to, and any shoots not required can be broken off without much inconvenience.

WALKS AND EDGINGS.—Where Box edgings or turf verges are used, these should now be attended to. Any dead places in the Box may be filled, but the clipping may be deferred a little longer, as severe frost after clipping would prevent new growth for some time. Turf verges should be edged and repaired where necessary. The roller ought also to be used on them freely. Any repairs or gravelling may be done without delay, and the roller should be used frequently. After frosty mornings the surface becomes loose and unpleasant to walk on. The roller will soon remedy this.—A. T., Cirencester.



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BOOKS (W. Z., San Francisco).—"Fruit Farming for Profit," by Mr. Geo. Bunyard, Maidstone, 2s. 9d. post free. "Profit-Fruit Growing," Messrs. Cheal and Sons, Crawley. "Pictorial Practical Fruit Culture," 1s., Cassell and Co., London. Also "The Fruit Garden," 21s., from "Country Life" office, Tavistock Street, London.

TOMATO PLANT FOR INSPECTION (W. B.).—The young plant, about 6in in height, and thin in the stem, is affected by the "sleeping disease" in a very malignant form. There is no cure for this disease, and also "black stripe," which, acting similarly on the stem of young plants, is becoming more and more prevalent each year. All plants showing the disease should be burned.

WASH FOR VIOLETS (B.).—There is no better wash for Violets at planting than paraffin emulsion, 8oz to 3 gallons of hot water, adding 1oz of sulphide of potassium. This is effective both against red spider and fungoid parasites, but the wash has little repressive effect on pests that may appear on, and attack the young growths. The best safeguard is the planting of single runners or suckers, giving them due room, and mulching with short manure before dry weather sets in.

PLANTING CUPRESSUS MACROCARPA (A Reader).—This very quick-growing and beautiful tree does not succeed well in exposed situations, being liable to be much damaged by severe frosts and fierce winds. In the South and West of England and Ireland, it, as a rule, thrives very well. It succeeds in any common garden soil, but as your soil is rocky, it may be necessary to provide a greater depth of soil. You could not employ anything better than good turfy loam; indeed, the tree succeeds best in a rather deep soil, and in a sheltered situation. The best time to plant is during moist weather in late March or early in April, and if the plants are in pots (a bad practice followed by some nurserymen), the sides of the ball should be loosened a little, and the roots spread out evenly in the soil. If the weather is dry, water-in, so as to settle the soil about the roots.

FRUIT ROOM AND POTTING SHED (Idem).—The best site for a fruit room in gardens generally is the north side of a wall, and as it is proposed to erect greenhouses, it would be best to construct a wall 10ft to 12ft high, and running east and west, and on the north side of this have the fruit room and potting shed as lean-to's. The size of the fruit room may be 12ft long by 10ft wide, and this will allow of a path up the centre and shelves on each side respectively, about 3ft wide, the door being at the end and the window on the north side. Shutters may be provided so that the room can be kept dark. The potting shed is also intended to act as tool house, and may be the same width, but should be 6ft longer (18ft in all). Thus you will have means for erecting two greenhouses or fruit houses on the south side of the wall as you may afterwards determine.

CHARGE FOR GARDEN TOOLS (N. W.).—The practice and charge for tools supplied to jobbing gardeners varies considerably in different localities. In some cases we have known the charge as low as 2d. per day, sometimes 4d., and generally the charge is as high as 6d., that is, the workman is paid 6d. less per day than he otherwise would if working on his own account and finding his own tools. Thus a jobbing gardener working for a nurseryman who finds the tools may receive 18s. per week, while the nurseryman charges his client 21s. per week. This rule runs in proportion. For a man paid 21s. per week, or 3s. 6d. per day, 24s. per week or 4s. per day are charged, while the workman paid 24s. or 25s. per week is charged for at 27s., or even 30s. per week. The tools supplied in some cases include scythe or mowing machine, even garden roller, as well as those you mention—shears, spades, forks, rakes, hoes, brooms, and barrow.

SOPHRONITIS WITH FORTY-FIVE FLOWERS (Lincoln).—Yes, this is very good. You are too modest when you suggest that it is only "a good average plant." Shall we publish your letter?

CHRYSANTHEMUMS (J. M. P.).—The varieties you name flower during November and the early part of December. Three of them we do not know. Madame C. Oberthur (white), stop end of March, second crowns. W. A. Etherington (silvery mauve), stop early in May, first crowns. F. S. Vallis (yellow), an easy one to grow, first crown. Mrs. J. Dunn (white), second crowns. The Duchees (yellow), natural second crown. These are each good varieties.

GOOSEBERRIES (Pershire).—You give no indication as to the number you require for your own use for dessert. We name two each of red, yellow, green, and white varieties that are of good flavour, but the fruit of some of them is small:—Red Champagne and Rough Red; Early Sulphur and Yellow Champagne; Langley Gem and Langley Gage; Snow-drop and Whitesmith. The following are extensively grown for market:—Crown Bob, Lancashire Lad, Keens' Seedling, Whinham's Industry, Red Warrington, and Whitesmith.

RAISING ECCREMOCARPUS SCABER FROM SEED (Paddle).—Sow the seed in March in pots just as you would any ordinary flower seed—that is to say, drain the pot well with broken crocks, fill it to within an inch of the rim with fine rich soil, which make smooth and even, water it, and then sow the seed, covering it with fine soil, which press down gently; place the pot in a warm structure, taking a hotbed for choice, and the young plants will soon appear, and should be pricked singly into small pots, grown on quickly in heat, gradually hardened, and then planted out. Take especial care not to bury the seed too deeply under the soil; much seed is so spoilt.

PLANTING TREES AND ASPARAGUS (M. H.).—Autumn is a better time for planting than spring, but we have planted thousands of trees in February successfully. The conditions of success are small trees well rooted, and those roots kept moist when out of the ground. Large trees with few roots, and these dried, are almost certain to fail. Very much also depends on the weather in March as to whether spring-planted trees grow freely, merely exist, or die. The roots of Asparagus should not be shortened, and must not be dried in transit. In planting a round saddle-like ridge should be formed, the plants being firmly set on it, and the roots spread out their full length on both sides.

SHIFTING MARECHAL NIEL ROSE (W. E.).—The Rose would grow quite as well in a large pot as in a barrel. A pot 18in in diameter would support a very large plant, which by annual top-dressings, removing some of the old and adding fresh soil and manure, might be kept healthy for several years. The worst of barrels is they decay at an inconvenient time, and pots do not; these, however, should be shaded from the sun in hot weather. Roses that require more root room may be shifted now, taking care not to overwater afterwards, as if the new soil is rendered sour roots will not enter it freely. As your Rose has grown so well you will know what kind of soil to use, and we observe you ask no question on that point.

PROTECTING RASPBERRIES (Kittie).—We presume you propose having a skeleton framework over your Raspberry bed, and desire to cover it with wire, the erection to remain permanently. One inch mesh galvanised wire would answer, and it may be light, medium, or strong, this being mainly a question of outlay, but governed also by the distance of the battens for supporting the wire; netting of medium strength lasts for many years. It is much cheaper to cover the framework with strong tarred fish netting, securing it to battens placed on the ground from post to post round the bed. This plan answers admirably, and if the netting be stored quite dry in a dry place it may be used for several seasons. It should be high enough for a person to walk under comfortably for gathering the fruit. Of course, wire netting is the most durable.

DISEASED HYACINTHS (S. C.).—The specimen is affected by the "yellow" disease, which appears upon the bulbs in autumn, filling the vacular bundles with a yellow slime, which contains immense quantities of a bacterium. These remain motionless whilst embedded in the slime, but when removed from it they soon exhibit a lively motion, and begin to divide. To these bodies the name *Pseudomonas Hyacinthi* has been given. But on subjecting a bit of the slime from the interior of the bulb to microscopic examination we found it swarming with eelworm (*Tylenchus obtusus*), and these we should consider the cause of the heart of the bulb decaying. The bulb is quite sound externally, even at the base. Probably the eelworm has entered the bulb by the apex, and has all unknowingly been feeding on the central tender parts, and thus destroyed the flowering and leafy growths while they were in the adventitious stage, though possibly they may have worked in conjunction with the bacterium or "yellow disease." All such bulbs should be destroyed by fire.



The Village and the Landlord.

We have before us a pamphlet with the above title, published by the Fabian Society, and as these pamphlets, or tracts as they are called, appear to enjoy some considerable circulation, we feel called upon to make a few remarks on the arguments used therein.

The writer appears to be imbued with a desire to do away with the landlord class. He describes one particular rural parish, and draws conclusions therefrom. "It is a large and straggling parish in a rural district, with a small population, some 500 souls, almost entirely agricultural in character, consisting of farmers, farm labourers, woodmen, and so forth. The place forms a good example for the study of the agricultural question. The farms are not over large, being mostly between 50 and 100 acres in extent. There is just the land, and the population living mainly by the cultivation of it. This population is not lacking in industry. It is fairly healthy and well grown. There is no severe poverty, and it is better off than most of our agricultural populations. Yet it is poor; one may almost say, very poor. Probably of the hundred families in the parish the average income is not much over £60 per year, and many, of course, can by no means reach that standard."

This is the parish which the writer describes, and his complaint is that the people have to pay £2,500 per annum in rent, or £25 per family, i.e., if there were no landlords the annual income per family would be £85 per annum instead of £60, or 33s. per week instead of 23s. Another complaint is that a portion of the parish was common land or moorland, which was enclosed 100 years ago, and absorbed by the lord of the manor and the lay Rector.

Now, we are not going to deny that there may have been gross cases of misappropriation of public lands, but we think that in many cases, we might say the most, the people who absorbed these lands became public benefactors, for it is no light thing to bring land into cultivation and find buildings and drainage. There is a great misapprehension, we might say ignorance, on the part of the new school of politicians as to the cost of making farms from common land. The Small Holdings Act will soon provide disillusionment. Good land is now offered at £1 per acre for small holdings, but without buildings. Estimates have been made that suitable buildings for small holdings would raise the price to £2 per acre, instead of £1. Well, those owners who did the enclosing would have a great outlay on buildings and draining, in opening ditches, and making fences. There are hundreds of estates now in this country which provide very small rents per acre if the original and annual cost of the buildings be considered.

The writer makes a point by quoting the fact that in the parish mentioned, no less than 449 acres (?) were absorbed in paying the expenses of the Act of Parliament. That seems a serious drawback, but as a large amount of the land was enclosed and devoted to cultivation and the employment of labour and the production of corn, which was so important about 1820, it must have been for the good of the country, if not for the parish as well.

We have known many fields and portions of parishes named commons, high commons, low commons, far commons, also moors, such as Top Moor, Captain's Moor, Far Moor, Newfield, Drovers'-dale, &c.; all of these we know to have been enclosed early in the nineteenth century. They were all poor land originally, and might have been common yet but for the tempting corn prices of the wars of the French Revolution. There has been a great cry for thirty years for bringing into cultivation more of the waste lands—the moorlands, the mountain lands—of the country; but if people who have money and who would do so, and provide buildings and drainage, are to be talked to as Mr. Carpenter of the Fabian Society talks to them, they will not make any such attempt.

We are absolutely in favour of Free Trade in land, farms, houses, and everything else in this country; but a man will give no more rent for land than it is worth, and if he takes land it is fair to suppose he is not giving more rent than he thinks he can afford to pay. We say *inside this country*. When we come to foreign restrictions and tariffs, we are Tariff Reformers, but we believe in Free Trade in British land, and in security for both tenant and landlord. We must be careful lest in trying to rectify an old error we may commit a greater one. It would be almost impossible to recover the old commons for the people except at enormous expense, and then the people who might

benefit from injustice to others would not be the people whose cause is pleaded by Mr. Carpenter. Perhaps there would hardly be one representative of the natives of 1820.

We agree that security of tenure is desirable, but Mr. Carpenter gives himself away when he compares the better lot of the farm labourer with the drudgery of the small farmer's son, who, as he says, "working early and late, perhaps up to the age of thirty, with no wages but a mere pittance in the way of pocket money, and only a remote prospect of inheriting at some future date his share of the farm stock and savings, and yet taking a whole-hearted interest in the work not really different from that which an artist might feel. There is some splendid material here in these classes neglected by the nation, and overlaid by a tawdry and cheapjack civilisation." We hardly think we need any further argument for Tariff Reform outside, and Free Trade inside, the Empire.

Work on the Home Farm.

After getting our land in nice order for spring working, it is very disappointing to find our hopes dissipated by heavy rains which, welcome as they are for the water supply, are a great hindrance to the progress of work. A continuance of rain will be serious just now, for there has been so little sunshine, and the land is so cold that it dries slowly. We want some March winds without rain, and we may then have some dust to drill the barley with. We had the land coming into nice order a fortnight ago, and we could cross fallows and make good work. It is not so now. We can certainly plough, but the result is by no means satisfactory.

Another trouble is the turnip land. Some requires ploughing behind the sheep, but there is too much water standing on the land to make ploughing advisable, so we must wait. We had been trying to drill some oats after turnips, and got the land harrowed and all ready for drilling when down came the rain, and now we fear it will mean another ploughing. If we have a good wind, and the chisel harrows will do their work well, we may be able to drill at once, but it is a poor outlook.

We are now getting well amongst the lambing, but so far there is little to record. There are few pairs, and ewes are healthy. It is not so everywhere, but luck varies very much. On some farms there has been a great deal of abortion and loss of ewes; on the next farm a clean bill of health; and again on the next everything wrong. No doubt much loss amongst ewes at this season is due to their having too many turnips, which are so plentiful in some districts as to be a positive nuisance.

After a great scarcity, newly calved cows are more plentiful, and well so, for they are always wanted at lambing time. Besides, the high price of butter is so encouraging that cows are sure to keep their price for some time. It is not often we see veal in the country in February, but we see plenty now, so evidently farmers are selling their calves and making butter instead of rearing them.

Potatoes are very slow to sell, and few are being moved. There are not many left to go, so there is no trouble on that score. Potatoes for pigs are as dear as ever, and pigs are much lower in price. Dear potatoes and dear meal are quite sufficient reason for the drop.

Wheat has dropped several shillings per quarter, but barley holds its price fairly well.

Trade and Miscellaneous Notes.

A "Weather Wisdom" Card.

A card which gives directions for the reading and meaning of the barometrical variations has been published by Messrs. Benton and Stone. The maxims, too, are interesting, as, "expect fine weather when seaweed is dry and dusty; when swallows fly high; after a grey sunrise; after a rosy sunset," and so on.

Scottish National Exhibition, Edinburgh.

We understand that the executive committee have accepted the tender of Messrs. James Boyd and Sons, the well-known horticultural builders and heating engineers, Paisley, and 66 and 67, Shoe Lane, London, E.C., to erect a large permanent winter garden at Saughton Park, Edinburgh. The building will be carried out principally in teak wood, and will have an imposing appearance, the dimensions being:—Length 100ft by 35ft, rising to a height of about 32ft to top of large lantern roof. There will be an octagonal vestibule in centre of front, with four lean-to greenhouses attached. The whole will be fitted up with a hot water heating installation; ladies' and gentlemen's lavatories will be connected to main building by a long corridor. The successful firm are the oldest established horticultural builders in the trade, and have carried out many important contracts in Scotland, England, Ireland, and the Colonies. The following winter gardens may be mentioned:—Windsor Gardens; People's Palace, Glasgow; People's Gardens, Phoenix Park, Dublin; Glasnevin, Dublin; Botanic Gardens, Glasgow, Cape Town, Port Elizabeth, and Durban, Oxford University, and Cambridge University.

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Journal of Horticulture.

THURSDAY, MARCH 5, 1903.

Experiment.

FROM Adam downwards every true
gardener has been an experi-
mentalist. Thus wrote Mr. H. H.
Cousins, in the preface to his
valuable primer, "The Chemistry
of the Garden," which little work
has proved of immense value to all
sections of the gardening community
during the last ten years. The preface
above referred to also contains the
following significant paragraph: "I appeal to
the gardeners of England to place themselves
in line with the only true and sound method
known to science, and the only safe and sure
means to progress and discovery—EXPERIMENT."

This appeal to the gardeners of England has
not been made in vain, and it would be difficult
indeed to estimate the immense amount of good
the publication of Mr. Cousins's primer has done,
for it has been studied closely by vast numbers
of gardeners, has been the means of developing
their natural desire for experimentation, and has
pointed the way to safe and reliable methods of
conducting garden experiments. The thought
naturally arises, how is it that the little primer
referred to should have aroused so much interest,
while numbers of more pretentious works have
fallen flat, and ensured only a meagre circula-
tion? To us it seems there are two reasons for
this, the chief one being that Mr. Cousins under-
stood gardeners, that he possessed a true
insight into their characters, aspirations, and
powers of observation, that, in fact, he
himself possessed the instinct of a true gardener.
He knew that as a body they have wonderful
powers of observation, that day after day, year
after year, they are continually learning new
facts, testing various methods of culture and
noting results, and that slowly, yet surely, by
such methods, they have won for British
gardening the proud position it occupies.

Mr. Cousins came to gardeners as a friend
who sympathised with their aims, knew their
difficulties, and admired their achievements; he

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told them frankly he thought he could help them along the path of progress by supplying simple directions to enable them to conduct scientific experiments in an intelligent way. He was too well acquainted with the painstaking efforts and keen powers of observation prevalent among gardeners to tell them bluntly—as some have done—that they were incapable of conducting reliable experiments. Mr. Cousins knew that many of them were working on scientific lines without knowing it; he also knew that a close association between the pure scientist and the keen practical man would help both along the path of progress; the author of "The Chemistry of the Garden" therefore encouraged gardeners to conduct experiments, and what is more, he managed to lay down rules for their guidance which could be clearly understood.

Gardeners generally, and exhibitors in particular, experiment in various ways throughout the whole year. The ingenious and various methods they practise for forwarding, retarding, or timing crops would surprise many a scientist. They also know the relative value of loose and firm potting in connection with the culture of various plants and crops. Again, how systematic and complicated are the Chrysanthemum growers' methods in regard to timing his blooms, and producing blooms of the right type. Such matters are intimately connected with the date of propagation, stopping, and "taking the buds." The vegetable grower knows from experience that certain portions of a garden are better adapted than any other for the growth of certain crops. He also knows the immense advantage of varying the positions of many crops according to the season at which they are sown or planted. Knowledge on all these matters, and many others besides, has been obtained by careful experiment. During recent years a great deal of attention has been devoted to experimental plots, with the object of determining the actual needs of any particular soil or crop.

It was long ago shown that to analyse the ashes of a plant and then attempt to supply similar crops with all the ingredients found in the ashes is a pure fallacy, because a root is obliged to absorb any substance in contact with it which is dissolved in soil water; also because the supply of food in the soil is an unknown and variable factor, and because, too, it has been shown over and over again that the needs of a plant grown under ordinary conditions differ widely from what the composition of the plants seems to suggest. Again, experiments conducted on one soil will give far different results from similar experiments carried out on another soil apparently not very different in appearance. It should, therefore, be the aim of every horticulturist who has the opportunity to conduct careful experiments to test the manurial requirements of the land and crops he cultivates, because he by such means obtains information of great economic value.

In carrying out such experiments plots of a rod, 30½ yards in extent, answer admirably, and if they can be duplicated so much the better. Let plot 1 receive no manure, plot 2 phosphate only, plot 3 potash only, plot 4 nitrate only, plot 5 potash and phosphate, plot 6 potash and nitrate, plot 7 nitrate and phosphate. All the plots should be sown at the same time, the same weight of seed should be used, or if plants put in, they should be as even in size and condition as possible, the after culture being in every respect the same, and the produce when fully grown carefully weighed. Potash might be supplied in the form of sulphate of potash, at the rate of 2 cwt per acre; phosphate, by superphosphate, at 5 cwt per acre; and nitrate by nitrate of soda, 2 cwt per acre; the two former being forked in during winter or early spring, and the nitrate applied in two dressings during the growing season. If trials of this description are conducted with one or two classes of crops each season every cultivator who conducts them may obtain a vast amount of valuable information in regard to the requirements of his own particular soil, but it does not necessarily follow that the results obtained would be of the same value to others in the immediate neighbourhood.

The National Potato Society (now, unfortunately, defunct) inaugurated many valuable experiments in regard to Potato culture. These carried out under the direction of Professor Middleton have supplied a mass of valuable information which all Potato growers should study. In addition to these classical experiments Messrs. Sutton and Sons have for many years conducted important trials, the results of which are always studied closely by cultivators. The Potato boom is now over, but the trials in various counties which were the outcome of that boom, caused great numbers of growers to take a closer interest in Potato culture, and it is certainly wise for growers to continue to test the best of the new varieties against the pick of the older ones. Heavy croppers, which are also of high table quality, are worth securing; none of us should be content with old favourites if we can find something better to replace them; neither do we want to discard old and well-tried sorts until we have proved the superiority of newer ones. The testing of varieties may therefore be considered as a necessary part of intelligent Potato growing. It also abounds in interest, and should appeal to every grower of vegetables.

Experiments in regard to the uses and value of nitro-bacterine will assuredly receive a vast amount of attention during the coming season; in reality no one can afford to neglect so important a development which appears to offer the cultivator so many advantages, and the safest way of being convinced of its practicability and value, or otherwise, is for cultivators themselves to conduct experiments in a careful and intelligent manner.—ONWARD.

Those who are the happy possessors of collections of hardy ferns, whether under glass or in rockeries or beds in the open, should now take in hand any re-arrangements or replanting which may be required, as it can now be done with the least detriment to the ferns themselves, and with the least check upon their root action.

The Hardy Fernery. If, as usually happens with long established plants of those ferns which form crowns round which the fronds spring up shuttlecock fashion, offsets have been produced and developed to adult size, so that dense clumps have taken the place of the original single crown plant, such clumps should be forked up and divided, the strongest crown being replanted in situ, and the others separated and planted individually elsewhere. In this way far finer individuals are secured, and as when we are writing we have always the beautiful varieties in view rather than the common or weed types, as found wild and hawked about the streets, we may add that the varietal character also is enhanced by the isolation or single crown culture we advocate.

The charm of a fern lies entirely in its frondage and the detail of such frondage, and it is obviously impossible that this can be displayed so well in a crowded clump of intermingled fronds, dwarfed by the struggle for existence among the contending roots below, as in a free growing single crown specimen of one untrammelled circlet. One of the finest ferns in our own collection is a king of the Male ferns (*Lastrea pseudo-mas cristata*). This is in a huge pot, has a trunk 18in high, and a circlet of fourteen heavily tasselled fronds, 4ft in length. We have had it over thirty years, and it is as robust as ever. Now and then an offset appears on the trunk, but is always taken off, and probably, in the course of the thirty odd years, several scores have been so removed. Outside in the garden is one of its offsets, taken off many years ago and left to its own sweet will. It is a dense mass minus trunk, but only 2ft high, and consists of over a dozen crowded plants, so that it and its parent constitute perfect specimens of both kinds of culture, i.e., culture proper, and, as Paddy would say, no culture at all. Happily the removal of these offsets or side growths is an easy operation, since no sooner is one produced as a bud on the parent's side, than it immediately proceeds to root on its own account, and hence when prized off with a blunt trowel, or pulled off with the finger and thumb, it comes away furnished with an independent bunch of roots; and if this be done at this season of the year it will establish itself thoroughly in a month or two, and very likely start its own youngsters before the year is out.

The same principle applies to all the large growing ferns which send up their fronds in circlets forming individual crowns, for all of them multiply on similar lines, and tend to form bunches at the expense of their individual size and development. The Polypodium family, however, act differently, as their name, which means many-footed, implies, and taking the common Polypody, and, of course, its beautiful varieties, as a type, we find no definite centre, but a sort of ramifying network of fleshy rambling rootstocks, in the Common Polypody nearly as thick as one's little finger, and in the other members of the same genus, the Oak, Beech, and Limestone Polypodies, as much thinner, almost string-like ones. In all these the fronds rise singly and successively in lines one after the other, and since a specimen of these species depends for its beauty on thorough establishment and consequent full development, the less they are disturbed the better. Should, however, fresh individuals be desired, it suffices to detach short lengths of these rootstocks, provided with a bunch of roots, a growing tip and a frond or two, and these pieces potted up will soon take hold and in time become specimens proper. Obviously for such ferns shallow pans are best, and in the open in rockeries they do best in slightly sloping stations filled with open leafy compost.

Ferns in pots and pans should be overhauled if the plants are out of condition. The old dead roots should be removed, sour soil washed away, and the residue repotted in smaller pots in the usual compost of loam, leaf or peat mould, equal parts, and a liberal dash of coarse silver sand. During these operations a sharp look out should be kept for possible weevil grubs, fat, white, curled up maggots, which may quite probably be literally at the root of the failure, and if overlooked will turn into the weevil beetle, which will not only gnaw the subsequent fronds into rags, but also perpetuate itself by another crop of grubs.—D.



Sophro-cattleya Antiochus rubra.

An admirable illustration of the new *Sophro-cattleya Antiochus rubra* is herewith presented. This variety was exhibited by Messrs. Charlesworth, of Heaton, Bradford, at the meeting of the Royal Horticultural Society on February 11, when an award of merit was accorded. The parentage was *Sophro-cattleya Cleopatra* and *Cattleya gigas*, so that there is only one "part" of *Sophronitis* to two of *Cattleya* in its composition. Our figure, by Mr. Shayler, shows the natural form and size. The colour is bright rosy carmine, shaded purple; while the lip is magenta purple with a gold base. It is a very attractive flower.

Lælia anceps and Varieties.

These desirable autumn and winter flowering orchids, which include such beautiful varieties as *Stella*, *Sanderiana*, *Schröderiana*, *Dawsoni*, and numerous others, are still at rest, and should only receive water at rare intervals; but whenever root action begins, the repotting or top-dressing may be taken in hand without further delay. They are usually grown in teak wood baskets, but this is not necessary; and if any reader finds a difficulty in flowering this section, more especially the white varieties, then I would advise him to try his plants in ordinary flower pots or pans, preferably those without side holes. Whichever are chosen they should be partly filled with drainage. A change might also be made when preparing the potting material by substituting *Polypodium* or *Osmunda* fibre for peat. I recently saw a very fine batch of white *anceps* which were grown in equal proportions of peat, *Polypodium*, and sphagnum moss; but whenever using the fibres referred to, always pot a little tighter than you would with a mixture of peat and sphagnum only. After repotting, very little water is needed for several weeks till the new shoot is growing freely, when the surroundings must be kept moist, and the plants syringed overhead once or twice each day if the weather is bright and dry. At night the temperature must not fall below 60deg to 65deg F.; but during the day it can rise to 90deg F. with sun heat, and no harm will accrue; in fact, plenty of light is very essential, or they fail to bloom satisfactorily. At no time ought they to be overdone with shading. The foliage may look slightly yellow, but with the help of some soot, placed under the stages in the

autumn, the green healthy appearance soon returns. Fresh air, if admitted with due regard to the season and condition of the elements outside, is most beneficial, particularly through the warmest months of the year. At this period the division ought to be shut up close about 3 p.m. (first spraying the inmates, and pulling up the blinds), till 7 p.m. or 8 p.m. in the evening, when both the top and bottom ventilators are opened a few inches for the night. It may perhaps be necessary to have a little warmth in the hot water pipes to prevent the temperature falling below the prescribed minimum.

Other Mexican *Lælias* that require similar treatment, and may be grown by the side of *L. anceps*, embrace *autumnalis*, *albida*, the beautiful natural hybrid *Gouldiana*, *furfuracea*, and *Eyerianiana*. A few hybrids have been raised, such as *L.-c. F. Boyle* and *Ediassa*, but they show little or no improvement, therefore are not often seen in collections, and may be termed discarded hybrids.—T. ANSTISS.

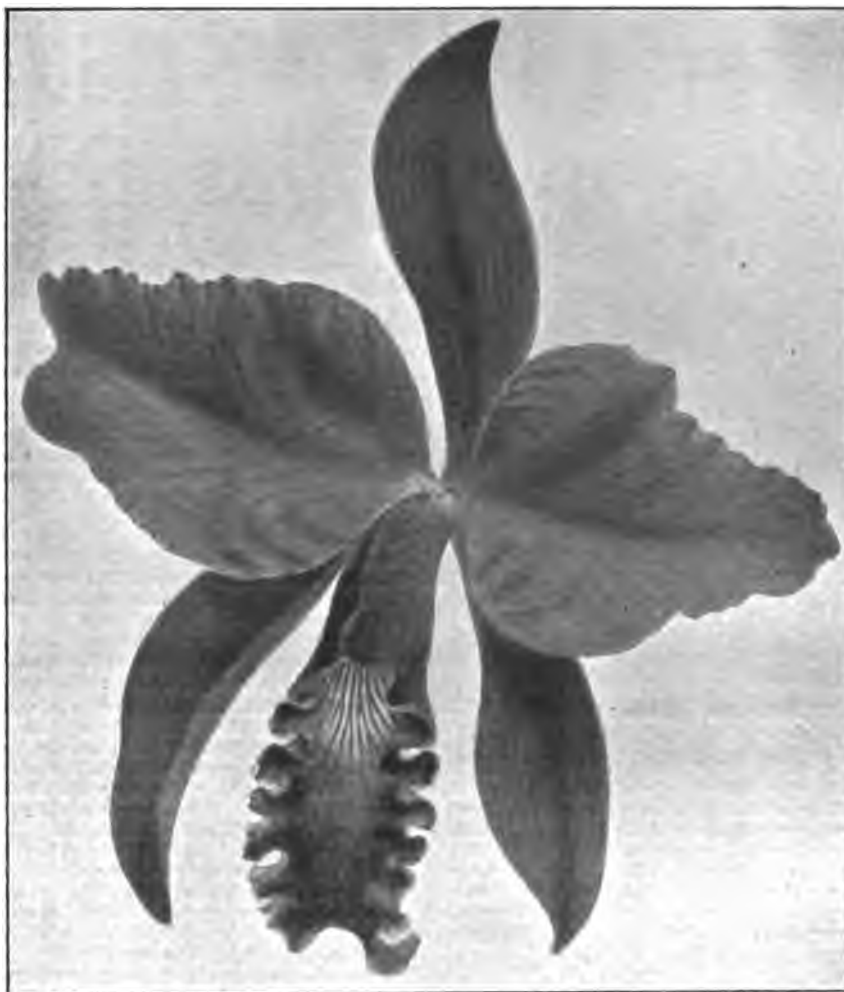
Sophronitis grandiflora.

We have flowering in the conservatory a plant of *Sophronitis grandiflora* with forty-five flowers. Will you please say if that is a good average plant. [It is very good.—Ed.]—C. PICKSLEY, The Gardens, D'Isney Place, Lincoln.

Lycaste Skinneri.

L. Skinneri is fairly widely distributed in a geographical sense, but always found where the temperature keeps

moderate the whole year around, and where day and night are more nearly equal than in northern latitudes. This, observes a writer in "Gardening" (Chicago), suggests a constantly cool and moist temperature, shade from bright sun during summer and all the light it is possible to obtain in winter. A safe minimum night temperature is 50deg in winter. In summer it is not always possible to get as low as this, but if plenty of air is left on, and the atmosphere of the house kept moist the plants will thrive well. A great aid in keeping up the proper kind of atmosphere in the cool orchid house is light spraying over the head of the plants. But this must not be overdone, and should be omitted entirely when the atmosphere outside is moist and during dull weather. A plentiful circulation of air at all times is necessary, as no orchid will continue long in health in a stuffy, close house. Roots of *Lycastes* are not so sensitive as are those of *Cattleyas*, *Phalenopsis*, and



Sophro-cattleya Antiochus rubra.

other pure epiphytes. In form and texture they resemble more the roots of ordinary plants, and, consequently, when making up the compost for them this may be made fairly substantial. The best *Lycastes* we ever grew were potted in shallow pans, more than half filled with drainage, the compost consisting of good fibry loam two parts, one part of leaf mould, and half a part each of sphagnum moss and fibry peat. In potting, plenty of broken crocks were thrown in to ensure thorough

aëration and allow the moisture to reach every part of the compost equally. Weak plants are usually elevated a little above the rims of the pots, but this is hardly necessary for strong specimens. During the time growth is active a very free supply of water is needed at the roots, and at no time ought they to be really dry for any length of time, as is practised with deciduous species like *Dendrobiums* or *Calanthes*. A fairly equable condition, in fact, all the year round is what the plants like, and given these few simple details these fine orchids are as easily grown as most greenhouse plants.

The Chestnuts of Ticino.

Vegetation is proverbially luxuriant around the Italian lakes. Grapes are the chief crop, and the other chief crop around Ticino may be reckoned the Chestnut harvest. This tree grows indigenously. It is the main timber growth, forming whole forests, and beautiful indeed are hill and dale in



Spanish Chestnuts at Ticino.

October and early November with their garb of gold. It is really remarkable how even the quite young seedlings and shoots of but a few years' growth, from the stumps of trees periodically cut for poles and firewood, bear fine fruit. Taken as a whole, the nut is a very fine one, a rich mahogany brown, comparing favourably with the Chestnut that I have seen in Southern Italy, Corsica, or Spain. On some of the lower heights round Lugano magnificent trees may be seen. Thus at Gentilino a specimen has been measured, and spans no less than eight metres (26ft) in circumference.—J. A. C. C.

Irish Departmental Committee on Forestry.

The Irish Departmental Committee on Forestry completed its sittings for taking evidence on the 13th of December. Strong evidence goes to show that timber-felling is being practised on a large scale, and that much of the timber is being shipped in the round to Great Britain, while the Irish sawmill owners are fearing a local timber famine in a few years. Owing to the present large sales of standing timber, prices obtainable by owners of woodlands are very low. The committee met again in Dublin several weeks ago, to draft its preliminary report.

Rockwork and Rock Plants.—V.

The rockwork introduced into a garden or grounds should bear some relation to its general character, its surroundings, and, above all, its size. Where the garden is small the extent of the work carried out should be proportionate, as nothing looks more out of character than a preponderance of rockwork in a small area. Some regard must also be given to the kind of plants to be used, as when the intention is to plant shrubs amongst and on the summit of the rockery, the rise from the surrounding ground should be gradual, avoiding anything approaching formality.

In some cases, especially in broad expanses of grass, relief is obtained by introducing large masses of rock partially buried, with one end standing out higher than the rest, while at the lower part may be a plant of *Cotoneaster*, *Vinca*, or some other suitable subject. Large isolated blocks of rock may often be so placed as to look natural, and are useful in breaking the monotony of the scene, and have special value for placing at the side of a path there to break an objectionable straight line, or give reason for a curve, especially where it is not advisable to introduce trees or shrubs that would ultimately get so high as to intercept the view from a desired point of sight. Skilfully placed, these rock masses or boulders are very effective, always provided there is a reason apparent for their employment, and when they appear to have a natural origin.

Where a stream runs through the grounds or there is water from a spring that can be diverted so as to run through the garden, a great deal may be effected both as regards rockwork, and also in the matter of a pond for aquatic plants, and even swamps or bogs for subjects that thrive in such places. The stream may be made to issue from a precipitous rock, and if with a northerly aspect, clothe the upland with *Adlers* and *Birches*, to form a background, *Hart's-tongue* and other ferns of bold aspect issuing from the clefts and rents. Thus, with the best effect, the stream may be made to pass over a rocky bed merging from a slow and gradual slope into the most precipitous descent, or even a waterfall might be added, though this is best introduced at the head. The margins may be made to appear as if composed of ledges of natural rocky strata. In the spaces between the rock masses, introduce plants which, while partially clothing, will not entirely hide the rock, and at the same time give meaning to the design. Here and there, as the stream passes into the defile through the grounds, rockwork with rock masses or boulders partially buried in the ground may be introduced with most telling effect. It is, however, necessary to avoid anything and everything that is an outrage upon Nature.

The small bits of rock, built up in rockery style in urban and suburban gardens, may serve their purpose for keeping up earth on banks, but it would be much more to the purpose from a rock point of view if the ten, twenty, or more pieces of rock, weighing a ton, were in bolder masses, and these disposed on the surface as boulders with different inclinations and embeddings. They would in all instances, and for all time, show some rock instead of being, as in most cases, ultimately overgrown and hidden. As a means of screening or hiding from view some unsightly object that may exist, any refuse material that may be at hand, such as that which may have been dug from the foundations of buildings, for cellars, &c., and which it frequently is an advantage to get rid of, can be utilised on the spot to advantage in forming a bank or mound.

The rock masses may have *Irises*, *Virginian Creepers*, and other *Vitis* species planted at the base, so that they may speedily impart to the whole a cheerful, well furnished appearance. In some cases root stumps of trees that are felled to make the needful clearances for buildings are available, and these roots of grubbed up trees can frequently be used with good results. The roots can be piled up in any grotesque form over the surface of a mound thrown up as referred to, giving the base sufficient breadth to produce the desired effect. *Ayrshire*, *Boursault*, and *Wichuraiana* *Roses*, the *Jackmani* and *Viticella* sections of *Clematis* of free-flowering habit, and numbers of other quick-growing plants may be planted.

In some parts of the country fossils are to be had, and these I have used with what the proprietor of the garden regarded as good effect. The one great thing about these materials for rockwork is their almost imperishable nature, but as for their appearance, which is mostly of a forest of miniature pinnacles or pyramids, the less said the better. The fossils I allude to are those of the *Sigillarioids* of the carboniferous flora, which do not appear to have any close modern allies, and their place in the botanical scale has been a subject of much controversy; also the *lycopods* (*Lepidodendrons*) of the carboniferous strata. Used judiciously, and as a distinct feature in some out-of-the-way corner or place, they form a tolerable rockery, and are best interspersed by ferns, the graceful and much-divided fronds of which form extreme contrast with the stiffness and formality of the mineralised remains of the carboniferous forest.—G. A.

NOTES & NOTICES

Philippe de Vilmorin.

Mons. Philippe de Vilmorin was admitted a Fellow of the Linnean Society on January 16, and a very important paper on "Notes on Brassica Crosses" was read by Arthur W. Sutton, V.M.H., at the same meeting. Mons. Vilmorin was a guest at the annual dinner of the Société Française d'Horticulture de Londres.

Royal Meteorological Society.

An ordinary meeting will be held at the Institution of Civil Engineers, Great George Street, Westminster, S.W., on Wednesday, March 11, 1908, at 7.30 p.m., when a lecture will be delivered on "The Dawn of Meteorology," by Dr. G. Hellmann, Director of the Royal Prussian Meteorological Institute, Berlin.

The National Fruit Growers' Federation.

A council meeting was held on Monday, March 2, at two o'clock. Agenda: 1. To read minutes of last meeting. 2. To read correspondence, including following letters of immediate importance: Board of Agriculture and Fisheries, Col. C. W. Long, Mr. W. Kruse. 3. To elect new members. 4. To fix a date for an extra council meeting, if it is considered necessary. 5. To receive a report from the committee appointed to inquire into the practicability of appointing an official organ to report the proceedings of the federation.

The Gale in Norfolk.

A great deal of damage has been done all over Norfolk with the typhoon of the evening of the 22nd of February. In several places glass structures have suffered severely from the powerful force of the wind, which was very much of the nature of a whirlwind. Here, the blast came on so suddenly, that before anyone could realise what happened the mischief was done. It lasted altogether only about eight or nine minutes. The lightning was very vivid, succeeded by instantaneous, crashing thunder, while the rain was torrential. In that short space of time several trees were blown down, some of them literally smashed to match wood. Huge branches have been snapped and blown twenty yards from the trees. It was providential that it did not last much longer, or the effects would have been indeed appalling. Last Saturday a snowfall of two inches covered the ground, and while writing, the snow is still fast falling. However, it is very unlikely that it will lie long. Much rain also has fallen during the last ten days, and the soil is sodden.—D. C.

The Late Mr. W. Coleman.

The late Mr. Coleman, who was perhaps not so well known to the younger generation of gardeners, passed away on Thursday, February 20, from heart failure, at the age of eighty-one years. He ranked high amongst horticulturists of the past century, and as far back as 1875 his portrait and an account of his life was published in the "Gardeners' Chronicle" (from which we extract these notes) as one of a series of articles on famous British gardeners. He was born in 1827 at Rolleston, in the eastern part of the county of Leicester, his father being gardener and manager on the estate at Rolleston for more than half a century. Mr. Coleman was appointed to the management of Eastnor Castle Gardens on May 1, 1860. The memorable winter of 1860-61 destroyed many of the choicest specimens of trees and plants at Eastnor, and Mr. Coleman immediately set about replacing them with the rich treasures sent home from Japan by Messrs. Veitch and Fortune. The glass houses were all rebuilt under his supervision, and he arranged the planting of the pleasure grounds, in which he showed excellent judgment. After about thirty years of successful management of the gardens, Mr. Coleman was appointed by Lady Henry Somerset agent for the Eastnor estates, which post he well filled for about twelve years. Through failing sight he retired after forty-two years of faithful service, which was greatly appreciated by his noble employers.

Home-grown Telegraph Poles.

In answer to a question put to him in the House of Commons recently, Mr. Buxton replied that telegraph poles were imported because suitable poles could not be obtained at home. He had invited tenders from all parts of the country, and had, as yet, only been able to place a small order for Larch poles with a Welsh firm.

A Florist's Profits.

At Wandsworth County Court on February 17, Mr. Henry John Crump, a Tooting florist, who sought to recover the value of a pad of Roses and a pad of Violets, said the two pads cost him 30s. at Covent Garden, and that he would have made £2 10s. profit on them. This, he explained, was December profit, and the price was as much for the making up as for the flowers. They had been entrusted to James Hughes, the defendant, carman and contractor, and his servant had lost them on the journey. His honour awarded plaintiff 23s. and costs.



A Card of Membership.

United Horticultural Benefit and Provident Society.

The annual meeting of the above society will be held at the Royal Horticultural Society's Hall, Vincent Square, Westminster, on Monday next, March 9, at 8 p.m. It is to be hoped that a large turn-out of members will appear, and so encourage the committee by their presence, or stimulate them by suggestions. The chairman of committee, Mr. Charles H. Curtis, will preside. Above, we illustrate the card of membership.

Notes from Wroxham, Norfolk.

The latter part of February was rather stormy and altogether unfavourable for much seed sowing. Yet many have managed to consign a goodly part of the seeds to Mother Earth during the dry weather in the early half of the month, and this is always a sort of relief to their impatience. Personally, I am not a believer in being in too much hurry in this particular sphere of gardening. A good many reverses have perforce sobered down my enthusiasm, and withal taught me the wholesome lesson that few seeds gain by too early association with a cold and chilly soil, as such must always be the case till the heat of the sun acquires more strength than it generally has in the first and second months of the year. February, as a rule, is a deceptive month. Very often it will be seen to open fine, and end disastrous, as it has done this year.

Sixty Tons of Flowers.

The Scilly Islands flower trade is now in full swing. During last week over sixty tons were despatched to up-country markets.

Mr. G. H. Weigt.

Mr. G. H. Weigt, an old Kewite, is now staying at Kew for a few weeks' holiday. For the last three years he has been employed by the Brazilian Government at Piracicaba, his special study being rubber and other economic plants that thrive so well in Brazil. He speaks well of the country, and says there are great possibilities for enterprising individuals, as large tracts of land are available which are well stocked with rubber plants, both the Para and Jequie varieties.

Weather in Perthshire.

March has come in like a lamb. After the storm and bluster of the past eight days the weather, although of a wintry aspect, is calm and seasonable on the 2nd inst. The snow that fell heavily on the 27th and 28th ult. still lies on all the hills around. On the morning of the 29th ult. 10deg of frost were registered, 2deg on the 1st, and there was a slight touch on the following morning. The sowing of Beans will be at once proceeded with in the district.—B. D., South Perthshire.

February Weather at Desford, Leicester.

The past month has been a mild one, with very even daily temperatures, only once falling below 40deg, and that was on the last day. The mean temperature for the month was 42.5deg, which is above the average. The warmest days were those of the 20th and 21st, when 51deg was registered for each day. The lowest minimum recorded was 26deg on the 2nd. The total rainfall for the month was small, only 0.95in, the greatest quantity falling on the 23rd. Rain fell on seven days only, thus giving us a fairly dry month for clearing off the arrears of spade work. The recent cold snap has been welcomed as a check to the forward bush fruit trees.—L. F. D.

British Gardeners' Association.

A public meeting will be held at Carr's Restaurant, 264, Strand, W.C., on Saturday, March 7, 1908, at seven p.m. The chair will be taken by Mr. George Gordon, V.M.H., supported by members of the executive committee. An address on the B.G.A. will be given by Mr. J. Weathers, secretary of the association. All professional gardeners working in the London Parks and Metropolitan gardens are invited to attend.

Great enthusiasm was displayed at the public meeting held in Richmond (Surrey), on February 25, but unfortunately the inclemency of the weather prevented many from being present. Mr. E. F. Hawes, in addition to presiding, gave a very interesting and rousing address, and especially emphasised the need for co-operation among professional gardeners. He was very ably supported by Mr. Dallimore, who dwelt on the necessity for drawing a line of distinction between the gardener and the garden labourer; and by Mr. J. Weathers, who gave much useful information relating to the B.G.A., and said the executive council was always ready to support the members in litigation should any require it, provided they could state a good case.

The Shrewsbury Society's Annual Meeting.

At the annual meeting of the Shropshire Horticultural Society the other day, Mr. W. W. Naunton read the annual report, in which the committee stated that they had again to congratulate the members of the society upon a most successful show. The weather was again propitious, which, having regard to the past summer, was most fortunate, and the attendance in excess of any previous year. The total receipts from all sources amounted to £5,922 12s. 8d., being £283 17s. 5d. in excess of the previous year, which year was higher by £400 8s. 4d. than any other year. It was gratifying to see that the number of annual subscribers steadily increased, the subscriptions last year amounting to £536 11s. The takings at the gates on the two days were also greater, amounting to the sum of £3,485 4s. 3d., as against £3,317 10s. 11d. The full audited statement of accounts showed that the balance of assets in 1907 amounted to £786 11s. The expenses of carrying on so great a show were necessarily large, but the committee were keeping a watchful eye on the expenditure side of the account, and would see it did not unduly increase.

Blues are Banned.

"European Seeds," in "The Florists' Exchange," says: "While the trade in Sweet Peas in general is booming, it is evident that the very dark blue and purple varieties, such as David R. Williamson and Horace Wright, are losing popularity. As the crop of these was fairly good, this is somewhat of a disappointment to the growers. Any good pink sells like hot cakes."

Sussex Weather.

The total rainfall at Abbots Leigh, Haywards Heath, for the past month was 1.14in, being 0.99in below the average. The heaviest fall was 0.25in on the 16th. Rain or snow fell on fourteen days. The maximum temperature was 53deg on the 14th and 20th; the minimum 28deg on the 3rd and 11th. Mean maximum 47.20deg; mean minimum 34.12deg; mean temperature 40.66deg, which is 2.22deg above the normal for the month. A fine dry month up to the 15th. The latter half of the month was stormy, with slight rains. There were 2in of snow on the morning of the 29th, and snow fell continuously for some hours on the afternoon of March 1.—R. I.

Baltic Rose and Sweet Pea Society.

Under this title the "Gardeners' Magazine" announces that a horticultural society, devoted to the culture of the Rose and the Sweet Pea, was organised last year in the City of London, the association being open only to members of the Baltic Mercantile and Shipping Exchange, Lloyd's, and subscribers to the Corn Exchange, with the clerks in their employ. The first exhibition was held in July, and as a result a sum of £20 was afterwards divided between the Corn Exchange Benevolent Society, the Cereals, the Shipbrokers' Benevolent Society, and the Oil-seed Benevolent Association. It is proposed to hold a second show in July next. The hon. secretaries are Mr. B. Hugo and Mr. F. T. Barker, the Baltic, St. Mary Axe.

The Fruit and Potato Trades' Association.

At the meeting of the executive committee of the National Federation of Fruit and Potato Trades' Association, held last week, the following resolutions were passed: (1.) That non-returnable empties should not be charged for. (2.) That the common welfare of fruit growers, trades, and public demand (in the interests of the honest fruit grower and trader), requires that all fruit and vegetables usually sold retail by weight, be likewise sold wholesale by actual declared net weights only. The secretary reported that he had received replies on this subject from affiliated associations representing 70 per cent. of the membership, and that without exception they were in favour of the proposed reforms. It was decided that the matter should be placed on the agenda for the annual meeting to be held at the Great Northern Hotel, Leeds, on Tuesday, March 31. The annual banquet of the federation will take place at the hotel, immediately following the general meeting, at 6.30 for 7 p.m., under the chairmanship of the Lord Mayor of Leeds, and tickets for same may be obtained from the secretary, Henry W. Goodall, Tavistock Hotel, Covent Garden, W.C., price 7s. 6d. each.

Grading of Canadian Apples.

A correspondence is going on in the Liverpool "Journal of Commerce" on the subject of the grading of Canadian Apples, and though the firing—between Liverpool and Ottawa—is at rather long range, the controversy has an interesting relevance to a whole class of trade customs. The point of the attack is, briefly, that when the Apple crop is a bad one the first-grade Apples, contracted for long before they are grown, practically disappear, and that the second grade is called the first. The defence is a dispute of the alleged facts, but it is admitted that "there is a tendency on the part of the growers and packers of Apples to grade the best of each season's crop as No. 1." It is clear, however, that by the Canadian Fruit Marks Act the grades may not be varied from year to year, though it appears that good Apples of a size inferior to the average prolific years do not necessarily lose their grade by their comparative smallness. The whole difficulty comes about through the system of contracting for crops long before their quality is determined, and this, it seems to be agreed, is a bad one, though we should suppose that the system and its defects are the inevitable result of the circumstances.—("Manchester Guardian.")

More About Primulas.

It might be thought that after the descriptive notes upon Primulas in a recent issue no more was to be said, or was needed to be said, upon the subject. Possibly not; but the China Primula is such a widely popular winter greenhouse plant, interest in it is deep and intense. I had the pleasure, a week or so ago, of visiting Messrs. Carter and Co.'s nursery at Houston Road, Forest Hill, S.E., where about 10,000 Primulas, I was told, are cultivated for seed purposes. They are under careful supervision, and are grown in neat, long, span-roofed houses, and seen in their blocks of rich bright colours, make a lively display in these dull and even snowy days. Not very grand weather this in which to fertilise flowers!

Taking the Giant strain first, one of the best varieties is that named King Edward, a large white, and beautifully fimbriated flower, of great substance. It has palmate foliage and reddish stems. Holborn Crested is an excellent pink form of the foregoing, so that these furnish a splendid pair for contrasting. The edges are deeply convoluted and folded in and out, being quite half an inch deep.

I liked few better, however, than Holborn Ruby, having six little white dots at equal intervals around the eye. The colour is very bright and effective. Nor can Princess May be overlooked. Besides its good sturdy habit, bushy form, and general thriftiness, the flowers are large and smooth, and of a soft rosy-pink shade. The zone around the eye is rich yellow, which contrasts well with the paler colour. Giant Magenta, despite its unattractive or unalluring name, is a noble flower of a good pleasing purplish colour. Holborn Coral is a better name, one thinks, and the flower, too, will doubtless command more admirers. It is of a salmon-pink, distinct from any of the other pinks, and the flowers are large, being held erect on a good truss.

Holborn Pink may also be added to the list of the best. Giant Crimson takes us again into rich, solid colours, and this is quite a dazzler of very good substance, and altogether an ideal flower. Rose Queen is Apple-blossom pink, and Elaine, of course, is white, but of it one might say that nobody can fail to make it completely successful as a flowering plant. Those seen here carried nearly fifty blooms per plant. It both grows and flowers freely.

Then we had a glance at the long serried benches of "ordinary" (i.e., not "Giant") sinensis varieties, which, at Carter's, comprise Holborn Dark Blue and Light Blue. A good albino in this section is Holborn Queen; and there are others named Crimson King and Scarlet—the latter an intense crimson-scarlet. It can easily be imagined how pleasing a contrast there would be from the admixture of some of the foregoing shades upon the stages. I do not commend indis-

criminate mixing: a pale blue and a pink or rose together are very beautiful; but more than these are perhaps not advisable.

Thirdly, there are the stellata or Star varieties, a typical plant of which is figured. This section contains all the foregoing colours, as lavender, pale blue, dark blue, carmine, old rose, deep pink, brick red, cream, white, and so on. The whites with chocolate coloured, or at least dark, stems, are the most effective; but it is, I suppose, a matter of taste and of individual opinion which are best liked. The Salmon, Light Blue, White, and Pink varieties (all are thus named), were the ones I selected.

Messrs. Carter's have quite an acquisition in their new Oak-leaved type, with foliage exactly like that of the scented Pelargonium named quercifolium. The flowers are fully double, and of a pleasing salmon-pink colour. It sported two years ago from Prince of Wales (double pink) and Holborn Salmon. The habit is bushy and compact, and altogether, if this can be perpetuated and obtained in other colours, there is here the beginning of a fine new race.

As to the doubles, they are charming flowers, such as I greatly admire, but I am not supported in this by a very large entourage. The varieties are Pink, Crimson, Princess of Wales, white; Vivid, crimson - a maranth; Coral, and Snowflake, the latter said to be useful for cutting, which must be a great point in its favour. The flowers are as fully double and rosette-like as they could be, with good habit and free-flowering character.

A glance at the splendidly grown Cinerarias (over 600 plants in 10in pots), completed the review, but of these and other flowers, more anon. —S. E.

What may be termed another distinct section has lately appeared from the Swanley nurseries. Messrs. Cannell and Sons have recrossed the stellatas with the sinensis varieties, and call the offspring the hybrid stellatas. Of course, they are not hybrids, but

only cross-breeds, yet the term illuminates. The new strain presents plants of the branching stellata habit, the flowers rising in tiers in the well known graceful fashion; but the form and size of the blooms have been very greatly enlarged. Indeed, in these respects they equal the average size of the sinensis flowers. The substance is also good. —J. H.

We have received from Messrs. W. Bull and Sons, King's Road, Chelsea, London, S.W., some flowers of their China Primulas which are very fine. Varieties that specially appealed to us on account of their large size and exquisite colours were Duke of York, deep crimson; Giant White, large single white with yellow eye; Countess, delicate bluish pink; Imperial Blue, beautiful lilac-blue; Pink Beauty, bluish pink; Ruby Queen, rich crimson-magenta, small yellow eye; Vulcan, deep bright crimson, extra fine; and Blushing Beauty, a very large variety.



One of Carter's Star Primulas.



Good Exhibition Roses.

Having visited a few of the leading shows in the Midlands, I can recommend with confidence the following Roses:—Frau Karl Druschki, undoubtedly the best white grown, and although disfigured by the weather, most of the competitors were able to find good large blooms. For the garden it is indispensable, being a perpetual bloomer, and producing quantity and quality. In my humble opinion Caroline Testout with its tender loveliness outshone all others of its class and colour. When the large pink buds burst into maturity they afford a very pleasing effect. Of the darker colours there are few to beat the rich velvety crimson shade of Fisher Holmes. This makes a good show Rose, and there are very few collections without it. Thomas Mills is of a much lighter red—a rosy carmine colour; and this, like the others, I can confidently recommend. Of the other hybrid perpetuals, special mention should be made of Margaret Dickson, which is a white Rose of splendid shape, and won a gold medal. Mrs. R. G. Sharman Crawford is, of course, also excellent (deep rosy pink), valuable to every owner of a garden. Ulrich Brunner still remains the magnificent Rose it was some years ago; its medium red colour on the top of its heavy foliage makes it worthy of a position in the back part of the Rose bed. Captain Hayward, Duke of Edinburgh, Duke of Teck, and many others should be mentioned. Of the tea-scented varieties, Lady Roberts, apricot; Madame Hoste, bright clear yellow; Hon. Edith Gifford, flesh with bright salmon red centre; Anna Olivier, pale rose; Madame Lambard, bright red; Maman Cochet, flesh shaded with salmon; Mrs. Edward Mawley, large carmine, shaded crimson; Jules Finger, brilliant red; Belle Lyonnaise, deep yellow; White Maman Cochet and Ernest Metz, carmine, are among the first-class varieties. Among the h.t.'s are Antoine Rivoire, rosy flesh; Bessie Brown, creamy white; Dean Hole, silvery carmine; Gladys Harkness, deep salmon pink; Gustave Regis, canary yellow; Killarney, flesh, shaded white and pink; Lady Battersea, rosy crimson; Liberty, dark crimson; Mildred Grant, ivory white; and Viscountess Folkestone, creamy pink, are certainly after careful trial and consideration found to be the best.—C. E. R., Blackwell.

Large v. Small Houses.

Some suggestive notes on this subject recently appeared in "The American Florist." "One of the most experienced Rose growers in the vicinity of Chicago, in conversation with the writer recently, gave it as his opinion that the large houses that are used at present are not as satisfactory as the older, smaller style of house. This man is not a crank or a "back number," but has charge of one of the finest ranges of glass in America, and knows what he is talking about. In the first place he objects to the low, solid benches. When benches 3ft or more high were in vogue the roots were kept up where there was an excellent circulation of warm buoyant air all around them. Whatever the ultimate result to the plants may be, there is no question but that young plants start away much quicker on such benches, while they are also more easily kept moving in winter. In a large growing establishment north of Chicago, where Sunset had been grown for many years with success on the old-fashioned benches, some new houses of great height and with low, solid beds were built. Sunset was planted on these, but was a rank failure, though the same grower was in charge. Some old houses wherein American Beauty never failed were torn down to make room for more modern structures where the same class of beds were used. The same system exactly was carried out; temperatures and soil conditions were identical, but the flowers are not as good now as from the old benches, and fewer long-stemmed blooms of No. 1 quality are produced pro rata with the bench space. I am not recommending small houses, and have no reason to decry large ones, having seen grand crops of American Beauty and other Roses grown in such structures, and personally handled plants of all the popular varieties in each."

Seed Inoculation.

According to the "North British Agriculturist," Mr. Stead, the editor of the "Review of Reviews," has made an arrangement with Prof. Bottomley to supply the inoculating material in packages costing 5s. each. In applying for these packages the applicant should state what particular leguminous crop he is intending to test the stuff upon, the idea being that each set of pure cultures are best adapted to the one particular crop. Address "Nitro-Bactérine," Mowbray House, Norfolk Street, London, W.C.

Public Parks and Gardens.

Pruning of Trees and Shrubs.

The time for this operation depends upon the time the sap rises in the former; and in the latter case whether the flowering period is in the early or late months. Coniferous trees require very little attention if they have been trained properly in the early stages; but it sometimes happens that the softer wooded and faster growing conifers, a few years after planting, thicken too much at the base. It then becomes necessary to remove the lower branches altogether, in order to induce the sap to rise and strengthen the upper part. Coniferous trees and Birches should be pruned in the autumn. Willows, Poplars, and Chestnuts also commence growth early, and attention to them should not be delayed too long. Limbs and branches, whether large or small, should be cut off clean and near the trunk, while a coating of tar brushed over the wounds will keep out the wet and disease.

Trees should have only one leader; they are then better able to withstand high winds. Many of the older trees in public parks have been allowed to develop several leaders, which have gone on too long to have anything done to them, until it becomes necessary to lop them to avoid endangering the public. However, there is always a good deal of risk where such trees are, especially Elms. *Ailantus glandulosa* is sometimes pruned hard, but this is a mistake. The tree grows very fast at first, but as it gets older the branches thicken into a more twiggy growth. Catalpas also have a similar habit. All cross-growing shoots, and those on the inside of Thorn trees may be removed. Laburnums, Carpinus, Birch, Alnus, Amelanchiers, Acers, Robinias, Gleditschias, and the various species of Juglans, require but little pruning.

SHRUBS.—Unless under the shade of trees, or for some reason that has caused them to become thin, Laurels, Aucubas, Privets, and Euonymus should only have the stronger growing shoots removed. The practice of butchering these shrubs with a pair of shears is, however, still carried out in some places. Hibiscus, Halesia, Hamamelis, Garrya, Escallonia, Elaeagnus, Magnolia, Phillyrea, Pieris, Rhamnus, Ribes, Veronicas, Cotoneasters, and many small growing shrubs, require little pruning. Cornus stolonifera and its yellow barked variety, if grown in beds, are more effective if cut down each spring; also Sambucus nigra aurea, Paulownia, and Symphoricarpos racemosus.

Climbers.

A good selection of these is unfortunately seldom met in public parks. Ivy predominates everywhere. There are a good many climbers which will succeed in many towns. Of the useful evergreens we have Garrya elliptica, with its long yellowish-green catkins; Escallonia macrantha, Elaeagnus glabrus variegatus (for low walls), Cotoneaster horizontalis, and Choisya ternata. Of those that are strictly climbers, Jasminum nudiflorum, Bignonia cupreolata, Celastrus articulatus, Clematis in variety, Aristolochia Sipho, Tecoma grandiflora, Lonicera of sorts, Akebia lobata, Berberidopsis corallina, Solanum Dulcamara, Vitis Coignetiae, Wistaria multijuga, and Plagianthus Lyalli are recommended.

The Flower Border.

ANNUALS.—Perhaps there is nothing more pleasing to the public eye than a showy flower border. Where there is a sunny border at command, annuals should be given a trial by themselves. Many of them root down deeply, and it is therefore necessary that the ground should be well trenched. Hardy annuals can be sown in the open air as early as the end of March, but there are others that do well and flower early if sown during early autumn, as Adonis Flos, Erysimum Perofskianum, Phacelia campanularia, Silene pendula, Iberis amara, Collinsia bicolor, and also Sweet Peas. There are several which are useful for cut flower, as many of the everlastings, Aconitum roseum; also Linum, Senecio elegans, Godetia, Kochia trichophylla, Linaria, Convolvulus, Centaurea, Chrysanthemum carinatum, Eschscholtzia, Lupin, Poppies, Nemophila, Malope, Helianthus, Gypsophila elegans, Coreopsis, and Calendula are exceedingly handsome. Half-hardy annuals should be sown now under glass. When large enough to handle the seedlings should be pricked off into boxes or pans. Growth having commenced, the plants must be removed to a cooler house and be gradually hardened off. Of this class, Zinnia, Phlox Drummondii, Salpiglossis sinuata, Tagetes, Mesembryanthemum, Mina lobata, Dianthus, Nemesis, Nicotiana, Brachycome, Balsam, Stocks, and China Asters, with Callistephus hortensis, are good. When sown in the open air it often happens that annuals are spoilt through the want of thinning. It is most important that this should be done carefully, and at the proper time.—A. J. HARTLESS.

Seed and Soil Inoculation.

(Concluded from page 199.)

The great obstacle to moorland reclamation for either agriculture or afforestation is the initial outlay, which, as regards agriculture, in respect of draining, fencing, and breaking up, is not less than £10 per acre, while that of afforesting, including plants and planting, is represented by a similar amount per acre. Indeed, the two, as I have noticed in moorland districts, should go together, afforestation supplying shelter and even warmth. Both should be subsidised by Government, if only to the extent of £100,000 each per annum. This would soon prove the value of the land for both agricultural, animal, and vegetable produce, as well as timber production, and thus justify the nationalisation of the twenty-one million acres of land now worse than wasted, and find work for and supporting a population, solving both the food problem and the unemployed problem upon the soundest foundation for the national welfare.

As regards the inoculation of seed and soil with nitrogenic bacteroids, my observation and experiences are altogether negative, inasmuch as all legumes contain the bacterial plasma, being hereditary, existing in mutualism and working symbiotically, as I have verified by the best of all tests, experience, of which two may be given:—

1. On a portion of moorland broken up some time during the eighteenth century and worked on agricultural lines. It was sown down in the nineteenth century to permanent pasture as park after thorough working and cleaning. It was well known to be Clover-sick; in fact, it would not, and did not grow, and this land was given to me to plant as game cover in groups with glades intervening. A part of this land was very heavy, and the plants set thereon were chiefly Portugal Laurels. They got "smaller by degrees and beautifully less"; therefore double Gorse was planted, alternating with the dwindling Portugal Laurels. The double Gorse went ahead, were a sight when in flower, and soon covered the ground all over to more than a yard high. They grew so fast that they soon became unsightly, and the order quickly came from the proprietor to clear them off. What was there? A debris of vegetable matter several inches thick on the surface of the ground, and in the soil roots passed deep down into the subsoil, and they were practically laden with nitrogenic nodosities. Whence came the bacteroids if not in the plants themselves? They being all from cuttings and received direct from the nurseries, some from York and some from Edinburgh. The ground was again broken up, the clumping re-arranged, and the glades sown with grass seeds, Clovers being included. Both new broad-leaved shrubs and the grass in the glades thrived splendidly, the Clover being so luxuriant and the grasses so sweet that rabbits so browsed the herbage down that there was only work for the scythe in cutting off bents, machinery being useless. Whence came the nitrogenic bacteroids to make the Clover thrive? Mark, this was "Clover-sick" land, and in something like ten years it had become Clover healthy.

2. I had seed of *Clanthus Dampieri* from the Antipodes, and was told there was some difficulty in flowering this, the Glory Pea. I sowed some of the seed in turf (reduced to mould) from the north Yorkshire moor, and some in ordinary turfy loam such as used for growing Melons. Both thrived finely, but the moorland-soil-grown plants gave the finest flowers, and the roots of the plants had the greatest profusion of nitrogenic nodosities. Whence came the bacteroids in this case, if not inherent in the seed?

Again, on a piece of moorland overgrown by Heather, Gorse, Bramble, &c., cut off and burned over the whole area, then broken up and sown with a mixture of grass seeds with a due proportion of Clovers, there was a luxuriant growth of the latter, so much so that they overpowered the finer grasses. Whence came bacteroids in this instance, except in the seed?

Lastly, on a piece of ground that had been heavily dressed with gas lime, and practically sterilised, I had occasion to sow Peas that naturally, in ordinary soil, grow 6ft high. They only grew 3ft high, and were worse than worthless, but their roots were practically covered with nitrogenic nodosities. Not a dozen yards away were rows of the same variety on land manured in the usual way with rotted stable manure, and these plants grew 9ft to 10ft high, and bore grand pods in succession, the Peas being declared delicious. There were next to no nitrogenic nodosities on the roots of these plants. Why were the nitrogenic nodosities abundant on the gas-limed land, and few on the manured? Of course, the reason of this is well known—the tubercles develop most when nitrogen in the soil is most diminished, and least where nitrate is present in the soil. But whence came the bacteroids, if not inherent in the plants?

The thing as regards legumes appears a matter of adequate supplies of lime and potash, with phosphoric acid, and these are

supplied in dressings of basic slag and kainit, and with these at command there appears no need for inoculating the seed or soil with nitrogenic bacteroids. Indeed, it is very doubtful if the nitrogen fixed by legumes profits the individual, this being dependent for its luxuriant growth or otherwise, upon nitrates available in the soil. This mainly, if not solely, profits by the decay of the nitrogenic nodules.

But surely free-nitrogen abstraction from the atmosphere and its fixation by nitrogenic nodule bacteroids is not a sole prerogative of legumes, for we find them very abundant sometimes on roots of Gardenias, Cucumbers, and many other plants, so that atmospheric nitrogen is absorbed as certainly as ammonia-charged vapour profits plants bathed therein.—A. B.

Stove and Greenhouse Plants.

Furcraeas.

When inspecting the collection of succulent plants at Kew, we have often been impressed with the beauty of the *Furcraeas*, and were therefore pleased to observe the following notes in "Amateur Gardening" relative to them and their cultivation:—

"The genus *Furcraea* contains but a few species, and it is difficult to understand or explain why they are not cultivated to any great extent in this country. I venture to assert that not one gardener in a hundred will recognise the name or possess a knowledge of their beauty and general characteristics, hence this plea on their behalf. At the outset it may be said that they are of easy culture, and are altogether very noble and beautiful subjects, also that they are natives of Mexico and Tropical America. No difficulty will be experienced, however, in spite of the great heat which prevails in their native land, in cultivating them successfully in a warm greenhouse, and as a compost, turfy loam, with a small quantity of peat and leaf soil, together with sufficient coarse sand and charcoal to ensure porosity and sweetness, will be found suitable.

"The *Furcraeas* require, and are capable of assimilating, considerable quantities of water during their season of active growth, and it should be explained that after repotting into large receptacles it must be somewhat sparingly applied until the roots have permeated the new compost, also that light syringings overhead are decidedly beneficial in summer, especially in the evenings of hot days. During July, August, and September these plants may be employed in the sub-tropical garden, and if placed in the full sun, protected from boisterous south-west winds, they will benefit by the out of door life of exposure. Several species have been experimented with in an endeavour to acclimatise them in South Devon and Cornwall, notably the Scilly Isles, but, with the exception of *F. longæva*, it has not been attended with success, and seeing that these favoured parts offer the nearest approach to the climatic conditions which prevail in their home which we can find in this country, it would, I think, be simply courting disaster to try it elsewhere.

"A Word as to Drainage and Winter Treatment.—In view of the fact that considerable quantities of water are essential in summer, the drainage must be ample and perfect, and a couple of inches of small crocks or cinders should rest upon the larger portions, followed by a layer of moss or a thin sheet of peat or turf. From October to April the plants must be kept only moderately moist; and, further, they should be fully exposed to the light. Propagation is effected by offsets and seeds, and in either case spring is the best time for the work.

"The following species are very desirable: *F. gigantea*, which throws up a great scape of inflorescence from half a dozen to 30ft in height, according to the size and vigour of the specimen. The flowers are white inside and green on the exterior. *F. cubensis* is more widely known than any other, with bright green flowers; sometimes an army of bulbils will develop in lieu of flowers. *P. elegans* has scapes in fully-grown plants upwards of 20ft in height, the flowers being greenish-white. *P. longæva*, as stated above, is happy enough outside in the Scilly Isles. Its flowers are a dirty white, and the towering scape has been known to exceed 40ft in height. *F. undulata* is of comparatively small growth, and rarely attains to a dozen feet, and differs from the remainder in that the flowers take a drooping form. *F. Watsoniana* is of comparatively recent introduction—dating from 1898. It is a beautiful plant, with long leaves two to three inches wide, of a bluish-green ground colour relieved with stripes of cream. The margins are undulated, and minutely spiny. It may be added that the *Furcraeas* were named in honour of a noted French chemist, named Fourcroy, and have been known as *Fourcroyas*; also that they are closely allied to the Agaves or American Aloes.—AGATE."



Forced Trees and Shrubs.

As these pass out of flower, return them to a warm house to make their growth. A house with a night temperature of 55deg F., rising to 60deg during the day, or more with sun heat, will suit them. A number, including *Prunus triloba* flore-pleno and *Forsythia suspensa*, will require cutting back to within a few inches of the old wood. Pick off the old flowers and seed-pods. Syringe at least three times a day during bright weather, and continue to introduce more plants into heat; they naturally flower quicker now than earlier in the season.—O.

Panax Victorice.

Panax is closely related to the *Aralia*, which relationship and the close resemblance is very often the cause of the one being mistaken for the other. There is at times some difficulty in keeping such varieties of *Aralia* as *Veitchi* (which is one of the best) in good condition as regards perfect furnishing of foliage for any great length of time after the plants have reached the specimen stage. This and their somewhat slow growth have acted in a manner calculated to prevent their cultivation being taken up on as extensive a scale as their merits as high-class ornamental foliage plants deserve. *Panax*, especially the variety known as *Victorice*, is nearly as decorative in appearance as some of the best *Aralias*, and in its cultivation there is not the slightest difficulty experienced at any stage of its growth. This *Panax* in small plants is very useful for florists' purposes in the way of filling, much in the same manner as *Pandanus* and *Dracenas* of like size are used, and in its specimen state it makes a very handsome pot plant for greenhouse or other decoration. Cuttings of *Panax* put in the sand now will root in two weeks; these will make useful little plants by early summer, while by fall they will be handsome specimens in 6in pots if they are grown on without interruption.

Uses of British Trees.

Touching upon a few out of the numerous trees so aptly described by Mr. Heath in "Our British Trees," there is the *Acacia*, which was at one time considered to be superior to Oak, and has some of the Oak's qualities of hardness and toughness. Next is the Alder, which for foundations and piers is very valuable, while the cabinet-maker and turner can utilise it for sundry household articles. The Apple tree was more used in former times than now for turning into various articles, such as wheel caps, and for other articles where durability is essential. The Ash is noted for its toughness and elasticity, and is therefore largely used by the coachmaker, the manufacturers of agricultural implements, and by the wheelwright. As for Beech wood, it is famed the world over for its utility. The Birch is a hard wood that is utilised by the wheelwright as well as by the furniture maker and the turner. Boxwood is still put to a considerable number of uses by the cabinet-maker and carver, although for wood engraving there is now not much demand for it. From Cedar wood a multiplicity of articles are made by the cabinet-maker. As for the stately Elm, its brownish fine-grained hard wood is, as all know, put to a considerable number of uses. With regard to Fir, our one indigenous or native tree, *Pinus sylvestris*, is alternately called the Scotch Fir and the Scotch Pine, but the generic name of deal best applies to it, and it is noteworthy that all the species hitherto introduced are quite hardy in British ground. For planks of floors, joists, rafters, and miscellaneous purposes, the wood of the various conifers is pretty extensively used. Larch is also, from a utilitarian point of view, very important, being in great demand for boat building, mill work, railway sleepers, and for a considerable number of purposes for which a carpenter

uses deal. Lime timber is used for many articles of furniture where lightness and delicate curves are required. Among other trees dilated upon for utility as well as beauty are the Maple, the Oak, the Pine, the Plane, the Poplar, the Willow, and the Yew.—("The Builder.")

Arabis albid compacta.

Much more compact in its growth than any of the other varieties of either *Arabis albid* or *A. alpina*, this variety will be found exceedingly helpful in all places where spring flowers are in request, and where sheets or lines of white flowers are desired. It comes remarkably true from seed, which can be obtained from some of the seedsmen, and it can thus soon be raised in quantity. As already said, it is more compact than the other varieties, and this neatness is not gained at the sacrifice of its flowering properties, for it is, in reality, more free in flower than any other variety that I know. Its dwarf, densely foliated clumps are entirely covered with its single white flowers, and a little group of a good sized individual plant is of great beauty. As an edging for a large bed or border it is excellent, but it is even more suitable for the centre of a bed, edged with an early *Aubrietia* or with such flowers as *Muscari*, *Chionodoxa sardensis*, or *Scilla bifolia*.—S. ARNOTT.

The Sandringham Lime Trees.

Mr. John Macpherson, of Ingatestone, Essex, writing to "The Daily Mail," says: Sir,—Having read in your columns that fourteen of the magnificent trees in the avenue of Limes at Sandringham have been blown down, may I call your attention to what was done when a very fine avenue of Lime trees at Duns Castle, Berwickshire, was levelled by the gale that blew down the Tay Bridge in 1879? The trees were raised under the superintendence of the late Mr. Alexander Shearer, gardener at Yester. The largest was 12ft 6in in girth at 6ft from the ground, and was computed to contain 300ft of timber. All the trees varied in height from 70ft to 80ft. The avenue at the present day shows but little trace of the fearful damage it sustained in 1879. As the ground is generally in a sodden state when large trees are blown down, the roots when torn up with masses of earth round them are less damaged than when artificially removed. If sufficient power can be applied to raise them, there should be little risk of their growing. Trees thus raised and replaced require to be well guyed to prevent them swaying, until their roots are re-established.

Forming Standard Shrubs.

Shrubs in standard form are (says Mr. Meehan in the "Florists' Exchange") now so much sought that quite a number of kinds are already to be had grown in this way; the Mock Orange, some *Spiræas*, Snowballs, Privet, *Hydrangea*, and Lilacs are particularly prominent. There are always positions suitable to all kinds and shapes of shrubs and trees, and shrubs as standards are quite popular just now. Usually it is for a place near a dwelling or a walk, for when on a lawn, unless near a flower garden or some similar work, the standard does not seem as well fitted as specimens of natural growth. This is the time to be preparing for the formation of standards. If strong shrubs admitting of the cutting away of all shoots but a leading central one can be had, the standard is almost made at once. The leading central shoot is the only one to be left. This, if branched up its side, must have all its side shoots cut away up to the height the standard is wanted to branch, say 4ft. Then leave the shoots above it, pruning them back a little and topping the central stem so that it won't get any higher, and a standard is there. But another way, and in some respects a better one, for it gives a cleaner looking stem, is to take in hand a strong young bush and cut it down to the ground, leaving but an inch or two at the base. A strong shoot, perhaps several of them, will start out in spring, when, should there be more than one, cut all away but the strongest. Let it grow to the required height, say 4ft, then top it. If side shoots are made let them grow the first season, cutting away in the winter following all that are below the desired height for the head. Try any bush at all that would appear pleasing as a standard.

Alton Towers.

In a quiet corner of Staffordshire, far from the crowded haunts of men, and situated in the centre of a locality as famous for the beauty of its scenery as for its historical romances, lies Alton Towers, the home of the Earl of Shrewsbury and Talbot, the subject of these notes, and where also may be found the original of the accompanying photograph.

The scenery for miles round is undulating, romantic, and pleasing; richly wooded and abounding in a luxuriance of vegetation. At one point may be seen a bold forbidding precipice of rocks, and a little further on a sheltered nook in the form of a valley.

In the midst of such surroundings one could not imagine a more desirable spot for building a mansion and forming a garden, and it was a happy inspiration that caused one of the scions of the noble house aforementioned to entertain such an idea, in the realisation of which he not only formed a beauti-

picturesque in its wild state, with the slopes on each side clothed with magnificent specimens of forest trees, and to this has been added the superior touches of a master hand in landscape gardening, with the result that Art and Nature are blended together in a unison as pleasing in character as it is natural in effect.

Rising from the depths of the valley on one side are a series of terraces, running parallel to each other, in such a manner that each is shown to advantage. Along the edges of these are placed large iron vases, furnished chiefly with zonal Pelargoniums, and Ivy-leaved varieties hanging gracefully round the sides. Fountains, cascades, statues, rustic bridges, and ornamental stonework present themselves in the most unlooked-for positions, yet all placed so as to be in perfect character with the surroundings.

A somewhat steep slope forms the other side of the valley, broken by long flights of stone steps, large masses of Rhododendrons, and fine specimens of Copper Beech, Cedars, Hemlock Spruce, Scotch Firs, and Yews. Nestling in the



View in the Garden, Alton Towers.

ful home for himself and those who have followed him, but also provided pleasure for the many visitors who journey to see the gardens.

Unlike many famous places, Alton Towers is comparatively modern, a century not having yet lapsed since the first stone was laid. The mansion is a masterpiece of architectural skill, and built of sandstone quarried in the neighbourhood. It is truly named, as numerous towers, chiefly Norman in style, rise high above the main body of the building. The same idea is followed throughout, as a moat crossed by a drawbridge runs along the whole frontage, and thick loop-holed walls, Gothic windows, and portcullised gateways bring to memory the strongholds of Norman barons, of which this is a type. A spacious lawn studded with magnificent Cedars of Lebanon and other trees slopes down from the front of the mansion to the margin of a large lake, along one end of which runs an ornamental bridge.

The main entrance to the gardens is effected by passing through a pair of handsome iron gates approached by a sweeping carriage drive running through the lawn. Words fail to express the extreme beauty of the scene that presents itself at this point. Imagine a perfect valley, which must have been

trees is an Ivy-covered thatch-roofed structure termed the Swiss Cottage, so called from the style in which it is built, and its quaint appearance and peaceful surroundings seem to suggest it as being an ideal spot to spend a quiet hour. I am, however, wandering from the point, so must return. Once inside the entrance gates the first object to claim attention is the statue shown in the photograph, which is a bust of the originator of the gardens, and underneath the figure are inscribed the words, "He made the desert smile." No words more true could have been chosen, for certainly in that he succeeded, and when gazing at his classical features one might be forgiven for envying him of his superior art. Surely such a man could not fail to be happy, living as he must have done in sympathy with Nature, and with the means to carry his superb taste for landscape gardening into practical effect.

Ivy is found everywhere, climbing up tree trunks, clothing terrace walls, and in other places covering the ground in creeping luxuriance. Owing to the undulating nature of the ground, a journey round the garden seems to be all steps, but as the visitor goes up this flight or down that any discomfiture in pedestrianism is amply rewarded by some fresh peep or charming view that presents itself as each turn is taken.—T.



Outdoor Peach Trees.

It is well to emphasise the fact for the information of that section of your many readers who waver in their opinion in regard to the cultivation of Peaches, that they can be grown well on open walls. No doubt local circumstances do account for much in the matter of success or failure; but as Mr. Arnold points out in his notes on page 132, soil preparation and drainage may, and positively do, make all the difference. An edict once issued was handed on by successive gardeners here, that Peaches could not be grown outside, and judging from the miserable samples in occupation on my taking charge, there seemed to be every justification for such an edict. Fortunately, however, this did not deter me, for I found that with only slight soil preparation, and no drainage, I have for several years obtained Peaches equal, and sometimes superior, to the glass-grown crops. I have proved that results like these are obtained without the aid of glass copings so strenuously advocated by some growers. True, we have some trees under this glass protection showing no material gain over those not so favoured. Beside the sorts mentioned by Mr. Arnold, we have Gladstone, a finely coloured late (and large) Peach; Violet Hâtive, Dese Tardive, Dr. Hogg, a finely flavoured fruit of the Noblesse, pale-skinned class; Raymaekers, and Nectarine Peach, all doing well. We find a south-east wall almost equal to that facing due south, but the western aspect disappoints. Neither Peach nor Nectarine succeeds with us on this wall. Surface feeding, and an occasional trench in half circle, as deeply worked as roots are found, suffice for these successes, adding lime rubble and burnt refuse to the fresh ingredients allowed. Many instances are recorded where Peaches are more or less a success outdoors. Their chief bane is leaf blister in spring time. —W. S., Rood Ashton.

Pot Washing.

Having read the recent controversy week by week, I should like to pen a few remarks. I do not believe in leaving pots for the so-called weather washing. Where they are stacked up in the open air, one row above the other, the rain only rinses the dirt out of the top rows down into those beneath, then with a few weeks dry weather the dirt is ground into all the crevices that, without a scrubbing brush, it is impossible to get clean. In my last place we used a large quantity of dirty pots, owing to not having time to cleanse them, and it was surprising to see the difference in the plants that were potted in clean pots and those that were potted in dirty ones. To use dirty pots puts me in mind of washing without soap. I have done a good bit of pot washing, and I do not think it a waste of time, but an absolute necessity. It may be an old-fashioned job, but I would advise all readers to be conservative and keep on with the oft tried and trusted method. I should like to mention in the case of Primulas that I have often found it necessary when decorating, to have to knock them out of the pots to work them round the bottom of pedestals or other vases where the pots could not possibly fit in. This is where we find out the dirty pot, as I have found when knocking out the plants that three parts of the soil is broken away, consequently the plant receives a severe check; whereas if a clean pot was used, the results would be far more satisfactory. —J. NIBBS, Hollington Manor.

Small Holdings.

The writer of "Home Farm" in your issue of the 27th ult. is not at all fair in his criticisms of the pamphlet "The Village and the Landlord," by Edward Carpenter. Like most Tariff Reformers, he wants to reform at the wrong end.

Mr. Carpenter thinks that if it was so easy for Parliament to enclose 10,000,000 acres between the years 1760 and 1880, it would be just as easy to pass them back again by the same means, for the benefit of the public at large, the argument being that the said land was inadequately cultivated. That argument could still be used, seeing that most of the common land has been used to produce rabbits, grouse, and other game.

Mr. Carpenter says the District Council had occasion to require some of this stolen land, and had to pay from first to last over £150 per acre. If this land is worth that sum, why is it not rated in proportion? To say, "Perhaps there would hardly be one representative of the natives of 1820" is quite outside Mr. Carpenter's argument, it being Agricultural Co-operation and Re-transfer of old Common Lands and Declaration

of Land Values. In support of the statement re the small farmer's son, the following evidence from Mr. Wilson Fox's report to the Royal Commission on Agriculture, 1895, may be given. One who farmed forty-seven acres of freehold says:—"I brought up a family, and nearly worked them to death. They said, 'Father, we are not going to stop here and be worked to death for nothing.' So they went off into shops, and left me and the old woman to struggle along. When they were here they got no wages; now they are ladies and gentlemen." I have extracted the above from a pamphlet, "Socialism and Agriculture," by Richard Higgs, issued by the Independent Labour Party, 23, Bride Lane, Fleet Street, London, E.C., price one penny. If our Tariff Reforming friend would get it and read, learn, and inwardly digest it, he would find a good deal to reflect upon. Mr. Higgs is a farmer, and his plea is a good one, i.e., more co-operation; better methods. He says that Collectivism is the only solution of the agricultural problem. —ALFRED GREENWOOD, Adel, Leeds.

Children as Handicaps.

Most heartily do I agree with your correspondent "T." in his condemnation of the practice of boycotting married gardeners who have children, which is far too common amongst those who should know better. This conduct is proof of narrow-mindedness and selfishness; it may even be condemned as cruel. After half a century's acquaintance with gardeners, I can testify that many of the best men are married men with families. Some persons cannot, or will not, marry; but that condition is really the best for both sexes, and the married man is generally a better man than the single one; and if a better man, he will also prove to be the better gardener. As to the mischief supposed to be caused by his children, it is rather mythical. Very few gardeners would permit their children to meddle with flowers or fruit; in fact, at a certain age children may be made useful in a garden, and employed to pick caterpillars off a variety of infested plants, and to capture flying insects that are parents of garden pests, by means of hand-nets; and they may also help in weeding. —J. C.

In reading a short article in your valuable journal, written by a gardener signing himself "T." and headed "Children as Handicaps," I can well sympathise with him, having been myself through the mill. If "T." has the *Journal of Horticulture* for September 12, 1872, he will find an article on the same subject written by your humble servant, and although I have been up and down the stokehole steps a great many times since, and shall soon be passing the seventy-fourth milestone, and have brought up a family of six children, I am pleased to say they are a great credit to their mother and father; and although I have for some time hung up my spade and the pruning knife, I still consider myself a gardener, and am always pleased to have the *Journal of Horticulture* to read, and to recognise any old name which I knew in days long gone by. How often I have wondered and tried to find if our old friend the "Wiltshire Rector" was still living. I do hope that some of our able men will take up this gardener's case, which is a tender subject for gardeners to deal with. My advice to "T." is to spit on his hands, to take a good, fresh hold on life and the work he has to do. I hope and trust he will then find that the children which now seem to hold him back will, before many years, not only be a help to him, but also a great comfort to his wife and himself in their old age. I will tell him some day how I have succeeded. —JAMES R. POCOCK, Bromley, Kent.

Where the French Beat Us.

There was mild excitement in Covent Garden Market last week, reports "The Daily Chronicle," over the prices realised for Lettuce consignments from France. English growers of this appetising commodity are well satisfied if they make over £5 a ton on what they send to the market, and £10 is to them a wonderful price to get. The ordinary public will, therefore, reflect when they hear that yesterday's (February 26) consignments of Lettuce from France sold in the wholesale market at the rate of £90 a ton, or 10d. a pound. The real point about this great disparity in prices is that the English varieties always eat tougher than the French ones, so naturally the public prefers French Lettuce to that which is home grown. There is an object lesson for English growers here, and particularly for the small holder. Mr. James Bradnum, who has been president of the Fruit Buyers' Association ever since it was founded five years ago, admirably illustrated this lesson. English Lettuce, he said, is tougher than the French because in the growing of it it is not protected from the winds. On the other hand, the French, while it is grown in the open fields as in England, is protected under glass. Mr. Bradnum thinks that there is no reason why the small holder in this country should not adopt the French methods of cultivating Lettuce.

Societies.

Royal Caledonian Horticultural.

Presentation to Mr. P. Murray Thomson.

A small but representative gathering of horticulturists took place in the Royal British Hotel, Princes Street, Edinburgh, on the afternoon of Tuesday, February 25, to present a tangible token of esteem to Mr. P. Murray Thomson, who for the past ten years has so acceptably carried on the affairs of the society as secretary and treasurer. He now leaves Edinburgh to occupy the position of estate agent to Mr. Perkin Moore, in Cumberland. Mr. W. H. Massie (of Messrs. Dicksons and Co.) occupied the chair. Amongst those present were Mr. McHattie, city gardener; Mr. Whytock, Dalkeith Gardens; Mr. Hay, Hopetoun Gardens; Mr. Kirk, Alloa; Mr. D. W. Thomson, Mr. John Methven, Mr. R. Mather, Mr. R. Laird, Mr. Jas. Grieve, Ex-Bailie Mackenzie, Mr. Mackenzie (the new secretary), Mr. A. D. Richardson, Mr. M. Todd, &c.

The presentation took the form of a cheque for a handsome sum, and a beautifully illuminated framed Address with a neat bound copy of the names of subscribers. In making the presentation, Mr. Massie expressed the pleasure it gave him, and the honour he felt conferred upon him, in being asked to preside. He had been intimately connected with the management of the Royal Caledonian during the ten years Mr. Murray Thomson had held office, and it gave him much pleasure to testify to the invaluable services Mr. Thomson had rendered in all matters of the society's business. His keen interest, his warm fervour, his constant fidelity to the most minute details, made the work of the council a pleasure, and contributed very largely to the success which had attended all their labours. To all the council, to all members, and to all exhibitors at the shows, he had been ever courteous and anxious at all times to help every one in any difficulty. Mr. Thomson's enthusiasm as a horticulturist had added to the pleasure which they had all felt in his personal friendship. He handed over this mark of their deep regret at losing his services, and their warmest wishes for his future success, and trusted that though removed from their midst, they would still be favoured with his counsel and frequently with his presence at their shows. The address was then handed over, and reads as follows:—

TO P. MURRAY THOMSON, ESQUIRE.

On the occasion of your retiral from the office of secretary and treasurer of the Royal Caledonian Horticultural Society, we, the office-bearers and members of the society and other friends, desire to place on record our appreciation of the highly efficient way in which you have discharged your duties, and of the unsparing efforts you have put forth in furthering the aims and work of the society generally, during the ten years you have occupied the position. We also desire to express to you the pleasure it gives us to look back upon the harmony which has characterised all our dealings with you during your official connection with the society, a state of affairs which we recognise to be in no small measure due to the uniform courtesy and kindness with which all who have been brought into contact with you have been treated. In asking you to accept from us a small token of our esteem and regard, we wish you every success in your new sphere of work; and, while we regret that our connection with you in an official capacity is to be severed, we rejoice to know we are still to have the benefit of your counsel and advice in horticultural matters, and we trust that you may be spared to have many re-unions with your former colleagues and co-workers of the society, with which you have so long been identified.—In name of the subscribers:—

W. H. MASSIE.
J. W. MCHATTIE.
J. WHYTOK.

Mr. Thomson replied in a very feeling and appreciative manner, as follows:—"Thanks for your very kind words and kind actions. You flatter me; you confound me. I feel utterly undeserving, and am unable to find suitable words. When you do all this at the end of ten years, I wonder what you might have said at the end of another ten. Well, we won't think of it. It might be a very different story. Still, I confess that I was sorry to break my connection; and you will understand me when I say that your kind expressions to-day do not make it easier. The ten years intercourse among you has brought me many pleasures, not the least of which is that I cannot recall having made a single enemy among all the very many exhibitors and others with whom I have rubbed shoulders, and I have made very many friends. Exhibitors have, to some extent, changed. The council has changed. Only two now upon it were there in 1898, namely, Messrs. Cowan and Murray. Lord Lothian, Mr. Malcolm Dunn, Mr. David Laird, Mr. James Smith, Dr. Falconer, Mr. Neil Fraser have passed away. That veteran, Mr. Malcolm MacIntyre, has forsaken us for a sunnier clime. Their places have been all filled. They were missed for a time, some longer, some shorter, but there are none of us but that can be done without. Ten years have also brought

great changes in our shows. The fancy Dahlia is now scarcely seen on the show table; the cactus and the pompon have put it out. Fashion is tending towards lightness and grace. The Rose was always in favour, but the mode of exhibiting the Queen of Flowers has also gone to lightness. The Sweet Pea has made a marvellous bound into fashion, and is now one of the great features of our autumn shows. The exhibiting of vegetables has been exalted to an art—how else can we speak of the magnificent displays which we have had of late?

"In the society and in the council there has been renewed enthusiasm. Our president (Lord Balfour) has brought us many new members. All the council have worked nobly, notably Mr. Massie, who was largely the lever to move the whole. When I came among you ten years ago I imagined I knew a good bit, but I feel I have been learning ever since, and still vistas are opening up, and the question is, Where do they lead to? One pleasure has been the intercourse which my position has brought me with such men as Bateson and Hurst, and the "grand old man of horticulture," the late Dr. Masters, and others who have been worrying at the mysteries of Nature, and have shown themselves, one and all, delighted to lend a helping hand to one poking away at the borders. My interest and my heart were in the work of the society, and it required little effort to bring me to do it; but in many ways and often, have I felt my shortcomings, and many a miserable time have I had. With very great pleasure I acknowledge the



Mr. P. Murray Thomson.

kindness and forbearance of the council, and I cannot imagine a more smooth and pleasant working management than we have had. I hope my successor may have the same good luck.

"Now and again there has been a talk of union—union of the old Royal Caledonian and its child, the Scottish Horticultural. Why should it not come? What are the difficulties? Of late years the two societies have been drawing closer. The courtship has been slow, and when it comes to popping the question, I wonder which is to do it? Is it to be a leap year business? I fancy neither knows which is to change the name. When that good time of union comes we shall, I hope, be on the high road to realising the accomplishment of a Horticultural Hall, library, &c., which Mr. D. W. Thomson has so well urged of late.

"You have very kindly said you will be glad to see me back at any time; I assure you it will give me very great pleasure. This lovely Address I shall treasure. It will remind me of many men, of many incidents, of many a pleasant time. I have an album of photographs of all who were on the council in the year of the International. I have kept that with great interest, but this Address I feel to be, in a sense, even more personal, more speaking. It is your own act, and in my home it will have an honoured place."

Mr. D. W. Thomson proposed a vote of thanks to Mr. McHattie for the good work he had done as secretary and treasurer of the presentation committee. They all knew, he said, that what Mr. McHattie undertook in anything connected with horticulture was done with enthusiasm and ability, which usually commanded success. Mr. McHattie replied, and urged on those present, as councillors and members of the Royal Caledonian, to be more assiduous than ever in their work for the society, and to afford every assistance possible to the new secretary, Mr. McKenzie. It was by doing so they

would best bring to full fruition the good work done by Mr. Murray Thomson. Mr. John Methven conveyed the thanks of the meeting to Mr. Massie for presiding. Tea and other refreshments were then served, and a pleasant hour was spent in social intercourse.—T. M. E.

Royal Horticultural, March 3rd.

The exhibition on Tuesday was the best of the present year, and the hall was well filled; even the greater of the orchid annex was utilised. The three finest groups were those from Sir Jeremiah Colman (orchids), Major Holford (orchids), and Messrs. R. and G. Cuthbert, of Southgate (who had *Azeleas* and forced shrubs). Each of these received a gold medal. The Floral Committee only awarded one certificate; and the Fruit Committee gave no awards at all; but the Orchid Committee as usual had plenty of groups and subjects to bestow favours upon. The orchids truly afford an endless subject of study, and some gems were again on view, particularly two *Cymbidiums* *Sanderi*, named respectively *superbum* and *splendens*, which received first-class certificates. What a genus that of *Cymbidium* now is! and how it has been augmented within the past eight years. A lovely *Lycaste Skinneri* from Mr. J. Bradshaw of a lovely salmon-rose colour, was, to us, unaccountably passed over. It is justifiable criticism to say that less beautiful varieties have received awards.

The groups from Westonbirt and Gatton Park were magnificent, particularly the latter. Such *Dendrobes* have surely never been surpassed. Messrs. Hill's display of exotic ferns is another feature deserving of notice, and Messrs. Wm. Paul's *Camellias*, too, were very pleasing.

There was a huge concourse of visitors, and pedestrianism was again exceedingly difficult. On all sides the cry was, Would not fewer tables suffice? for a good deal of the stuff was of the every-day sort.

Two lectures were given, one on the Flora of New Zealand, which appeared to be very short; and at four o'clock, before the Scientific Committee, Mr. Arthur W. Sutton gave an address on "The Tuber-bearing Species of *Solanum*," illustrated with lantern slides. One hundred new Fellows were elected.

Orchid Committee.

Present: Mr. J. Gurney Fowler (in the chair); with Messrs. James O'Brien, R. A. Rolfe, Harry J. Veitch, H. T. Little, W. Boxall, Jeremiah Colman, A. A. MacBean, Stuart H. Low, John Cypher, Frederick J. Hanbury, W. Bolton, F. Mentieth Ogilvie, J. Charlesworth, Walter Cobb, J. T. Alcock, H. A. Tracy, W. H. White, Gurney Wilson, H. Ballantine, J. Wilson Potter, F. J. Thorne, H. G. Alexander, H. J. Chapman, Chas. C. Curtis, Arthur Dye, C. J. Lucas, Norman C. Cookson, R. Brooman White, and de B. Crawshaw.

Major Holford (grower, Mr. H. G. Alexander), Westonbirt, Tetbury, Glos., filled a great space. The scheme of arrangement was to mound up at each end grouplets of *L.-c. Ariel* (*L. Cowani* x *C. aurea*), with reddish-orange flowers, and have *Cattleyas*, *Odonto's.*, and *Cyp's.* in the interspace. *Coeogyne cristata* *Lemoniana* was grandly represented, the several pans being crowded with flowers. Of the *Cypripediums*, *Euryades* was superb, with over twenty large flowers; also *Cyp. Lathamianum*, with quite as many blooms; together with the lovely *Cyp. aureum* *Oedippe*, and *Cyp. Mons. le Curie*, finely spotted. *Laelio-cattleya* *Dorothy* is a particularly fine subject, of soft tawny-rose coloured petals and carmine lip. The *Cattleyas* were mainly varieties of *Trianae*, and there were also numerous strongly grown *Dendrobes* and other things. (Gold medal.)

Sir Jeremiah Colman, Bart. (gardener, Mr. W. P. Bound), Gatton Park, Reigate, filled a large space of tiered tabling. This was undoubtedly the finest display ever arranged from Gatton, and was conspicuous for the cleanness, great strength, and general high class quality of the plants themselves, no less than for the very effective arrangement. Some of the pseudo-bulbs were close upon 4ft in length, and the wealth of flowers was truly remarkable. The collection, of course, was rich in hybrids and varieties, among them being *Dendrobiums* *Apolla grandiflora*, *Wardianum alba*, *Ainsworthi* *Hazelbourne* var., and also the *Woodhatch* var., with *Cybele aurora*, *signatum* *aureum*, *nobile alba*. *Cattleyas* were mounded in the centre, together with a few *Cypripeds*, *Saccolabium billinum*, *Spathoglottis aurea*, *Odontoglossum Edwardi*, hybrid *Phaius*, and *Epidendrum radicans* were others of the plants shown. (Gold medal.)

A display of *Odontoglossums* came from Norman C. Cookson, Esq. (gardener, Mr. H. J. Chapman), Oakwood, Wylam-on-Tyne. The plants were just set freely apart, upon small pedestals, and had a few Maidenhair ferns among them, yet they furnished a most charming show with their arching racemes. There were some exceptionally fine subjects on view, of which we can only name one or two. *Odontoglossum* *Harryano-crispum* is undoubtedly one of the finest members still. *Od. crispum* *tesselatum*, white, with crimson spots;

Od. c. Memoria *Battle of Waterloo*, purple-barred and coppery blotched; *Od. c. St. Albans*, brown marked on the petals and lip; *Od. c. Mrs. Peeters*, and *Od. c. Pittianum*, were the more prominent. A very fine piece of *Od. Loochristyense* was also noticed. (Silver Flora medal.)

A few good *Cypripediums* came from Messrs. Heath and Son, Cheltenham, who also showed a specially fine *Primula* named *Rose Queen*.

Messrs. Cyphers, of Cheltenham, staged a tasty group in which were *Dendrobium Farmeri* (very fine), *Cypripedium* *Venus*, *Cymbidium* *Lowi-eburneum*, *Laelia Jongheana*, *Lycastes*, *Sophranitis*, *Laelio-cattleyas* and *Odontoglossums*, *Wiganianum* being particularly rich and fine. *L.-c. luminosa* was also specially noteworthy; and equally fine was *Brasso-cattleya* *Thorntoni*, a smart, firm, well-made flower. (Silver Flora medal.)

H. S. Goodson, Esq. (gardener, Mr. Geo. S. Day), Fairlawn, West Hill, Putney, had a nicely-grown *Miltonia* carrying nine large flowers, and this was the best plant in an otherwise mediocre collection.

Messrs. Charlesworth and Co., Heaton, Bradford, were represented by some rich subjects, including a good *Cattleya* *Trianae* var., *Cymbidium* *Woodhamsianum* (pale creamy-brown with purple lip), *Laelio-cattleya* *Hypatia* (cochineal-orange, with ruby-crimson lip), *Eulophiella Elizabethae*, *Odontoglossum Ossulstoni*, *Brasso-catt. Queen Alexandra*, a splendid white form, the lip greenish inside and finely frilled. The old and pretty *Angraecum citratum* was on view, and many other good things. (Silver Flora medal.)

Messrs. Hugh Low and Co., Bush Hill Park, Enfield, in a small group had plants of the best quality, comprising *Dendrobium nobile nobilium*, *D. The Pearl*, *D. n. virginale*, *Cymbidium* *Wiganianum*, *Cym. Bellianum* (very chaste), *Odontoglossum crispum* *Carmania*, *Pleurothallis Roesli*, with pendent dark crimson racemes; and several good *Cypripediums*. (Silver Flora medal.)

C. J. Lucas, Esq. (gardener, Mr. Duncan), Warnham Court, Horsham, contributed some excellent varieties of *Odontoglossums*, particularly well grown. His *St. Patrick* was very fine, blotched with light brown over white; and so was his *Laelio-cattleya* *Amelia* with orange-cinnamon flowers. (Silver Flora medal.)

A cultural commendation and award of merit was given to Walter Cobb, Esq. (gardener, Mr. C. J. Salter), Normanhurst, Rusper, for *Maxillaria lutea alba*, which was simply a circular mass of flowers. This was admired by everyone. The flowers have long segments, sinuous, and coloured brown and yellow.

Messrs. Armstrong and Brown, Tunbridge Wells, had *Laelio-cattleya* *Daffodil*, a charming and unique new flower; and *Laelia* *Stathera* (*L. flava* x *L. purpurata*). They also had *Cypripedium aureum* *Hyeannum*, very fine; and *Brasso-cattleya* *Thorntoni*, together with other things. (Silver Banksian medal.)

J. Bradshaw, Esq. (gardener, Mr. G. G. Whitelegg), The Grange, Southgate, sent *Lycaste Skinneri* *Princess Ida*, a sweet salmon-rose coloured variety, one of the finest we have seen, and a white form of *Cattleya* *Luddemanniana* *alba* named *Empress*. This was quite white save for the soft clear yellow throat, and the veining was traced in lines through the white. Quite a grand thing.

Messrs. Stanley and Co., Southgate, N., had a miscellaneous collection of *Laelia cinnabarina*, *Dendrobes* (*primulinum* good), and some *Cattleya* *Trianae* varieties.

Mr. Jules Hye de Crom, Ghent, sent cut blooms of *Cattleya* *Suzanne Hye de Crom* (Catt. *Mossie Wagneri* x *C. Gaskelliana* *alba*), a very fine wavy white flower, with crimped lip, touched with deep yellow.

Some good *Odontoglossums* came from Mr. Maurice Mertens, Mont St. Amand, Ghent, but they were not named. (Silver Banksian medal.)

Fruit and Vegetable Committee.

Present: Mr. Alex. Dean (in the chair); with Messrs. Wm. J. Jefferies, Edwin Beckett, A. R. Allan, R. Lye, H. Markham, G. Reynolds, John Harrison, Geo. Kelf, James Vert, P. C. M. Veitch, J. Jaques, J. McIndoe, Geo. Wythes, Owen Thomas, C. G. A. Nix, H. Parr, J. Davis, and J. Lyne.

Five dishes of Apples were exhibited by T. B. T. Hildyard, Esq. (gardener, Mr. Geo. Langstone), The Gardens, Hintham Hall, Newark, all being very fine. A vote of thanks was awarded.

Floral Committee.

Present: Mr. W. Marshall (in the chair); with Messrs. Henry B. May, W. A. Bilney, James Walker, Jas. Douglas, T. W. Turner, G. Reuthe, John Green, J. F. McLeod, Wm. Howe, J. Jennings, C. J. Salter, W. Bain, Chas. Dixon, E. T. Cook, R. C. Reginald Nevill, Herbert J. Outbush, Arthur Turner, R. C. Notcutt, W. P. Thomson, E. H. Jenkins, George Paul, R. Hooper Pearson, Arthur R. Goodwin, Jas. Hudson, Chas. T. Druery, Walter T. Ware, Geo. Gordon, Wm. Cuthbertson, and F. Page Roberts.

Messrs. W. Paul and Son, Waltham Cross, sent Camellias and *Dracæna indivisa*, which contrasted splendidly. The finest of the Camellias were *Adelina Benvenuti*, pink; *Marchioness of Exeter*, rose-carmine; *Mathotiana*, crimson; *alba plena*, white; *Mars*, a semi-double crimson; and *Contessa d'Hainaut*, pale soft peach. The bushes were of varying sizes, all in rude health, and clustered with flowers. (Silver Flora medal.)

Messrs. Cannell and Sons, Swanley, again contributed a selection of their choice zonal Pelargoniums, with large smooth round flowers and brilliant colours. They had also a display of Chinese Primula flowers and plants of the stellata kinds and "hybrid stellatas"—the latter having flowers as large as in the sinensis varieties with the pyramidal form. In this section they are quite unsurpassed, and indeed well ahead. (Bronze Flora medal.)

Messrs. Hill and Son, Barrowfield Nurseries, Lower Edmonston, brought a liberal array of large decorative exotic ferns. *Platycerium* were prominent; also *Lastrea patens*, *Davallia canariensis elegans*, *Pteris Smithiana*, *Adiantum scutum*, *Gymnogramma schizophylla*, *Nephrolepis Amerpohli* (very pretty), *Gleichenia dicarpa longipinnate*, *Adiantum Bausei*, *Davallia polyantha*, *Polypodium conjugatum*, and many other good ferns. (Silver-gilt Flora medal.)

Lachenalias in pots, and dwarf alpines, also flowering in pots, and some succulents, came from Messrs. John Peed and Son, West Norwood. Messrs. Paul and Son, The Old Nurseries, Cheshunt, contributed Primula *Kewensis*, Primula *obconica gigantea*, *Rhodea congesta aurea marginata*, and some alpines. Messrs. Robt. Veitch and Son, Exeter, sent *Erica Veitchii* and *Rhododendrons*.

Lord Zouche (gardener, Mr. F. Spillard), Parham Park, Pullborough, Sussex, had huge *Cyclamens* in 12in pots, with large quantities of flowers; but they were of inferior form. He also had a small collection of good Apples. (Vote of thanks.)

Mr. Geo. Mount, Canterbury, staged a delicious array of splendid Roses, including the new soft pink h.t. Joseph Lowe, a grand acquisition. (Silver Flora medal.)

Messrs. R. and G. Cuthbert, Southgate, N., filled two-thirds of the east side of the hall with forced Azaleas, Lilacs, Magnolias, and Cytisus. All sizes of these plants were included, and a good many were seen as standards. A selection of the best Azaleas were *Alphonse Levalle*, *Isabella Van Houtte*, Chas. Darwin, Anthony Koster, and *lutea major*. There were also *Wisterias* and *Ribes sanguinea*—all fine stuff. (Gold medal.)

A similar but smaller group of forced shrubs, comprising also Azaleas *indica* vars., Lilacs, and *Clematis indivisa* came from Mr. L. R. Russell, Richmond. (Silver Flora medal.)

Lord Hillingdon (gardener, Mr. A. R. Allan), Uxbridge, displayed exceedingly well-grown *Lachenalias*, which won a silver Banksian medal.

Mr. Herbert Chapman, Rye, again staged hybrid and new Freesias. F. Chapmani, rich yellow, is one of the best.

Mr. R. Gill, nurseryman, Tremough, Penryn, Cornwall, filled a long table-length of *Rhododendrons*—arborescent and barbatum varieties. The finest thing was Mrs. Henry Shilson, a pretty deep pink. *R. albens* was also very pretty—a soft white. There was a goodly number of varieties.

Messrs. Jas. Veitch and Sons, Ltd., Royal Exotic Nursery, Chelsea, S.W., had an extensive array of standard *Wisterias*, Cherry blossom (*Cerasus J. H. Veitch*), with *Rhododendrons*, *Staphyleas*, *Deutzias*, *Choisya ternata*, *Guelder Roses*, *Pyrus floribunda atrosanguinea*, double Lilacs, *Buddleia asiatica*, and *Hamamelis*, with many other things. They also had a display of greenhouse plants, comprising *Lopezia miniata*, with pretty carmine flowers; *Coreopsis Grantii*, rich yellow flowers and pinatifid foliage; *Coleus thyrsoides*, *Gerbera Jamesoni*, *Kalanchoe Dyeri*, white flowers, well grown; Primula *Kewensis*, *Azalea amœna Hexe*, together with a representative group of *Azalea indica*, and Carnations. (Silver-gilt Flora medal.)

Messrs. Hugh Low and Co., Bush Hill Park, Enfield, brought *Acacia cordata*, *Acacia Drummondii*, *Daphne indica rubra*, *Cyclamen Low's Salmon*, and a selection of Carnations. (Silver Flora medal.)

Messrs. Paul and Son, of Cheshunt, had double Lilacs in pots, in quite an array of varieties. (Banksian Flora medal.)

Messrs. Wallace, Barr, and Reuthe had collections of hardy plants, Barr's being strong in Crocuses and *Helleborus*, for one of which (Peter Barr) they received an A.M. They also showed early Daffodils. Messrs. Cheal and Sons, Crawley, had double and single Primroses and other alpines; while Messrs. Ware from Feltham filled a table length with seasonable hardy subjects—ferns, plants, shrubs, and bamboos.

For a very even and good display of Tulips, Hyacinths, Lilliums, Azaleas, Callas, and other forced subjects a silver-gilt Lindley medal was awarded to Lady Tate (gardener, Mr. W. Howe), Streatham. Mr. W. H. Page, Hampton, and Mr. Burnett, of Guernsey, each had groups of Carnations, the former winning a bronze Flora medal; and Messrs. Cuthbert had these and hardy

plants. (Silver-gilt Flora medal.) Messrs. May and Son, Edmonton, had stove and greenhouse plants. (Silver Flora medal.)

Certificates and Awards of Merit.

Cymbidium Sanderi superbum.—A magnificent large, pink flowered variety with white lip, mottled dark red, and having a yellow beam in the throat. A regal flower. F.C.C.

Cymbidium Sanderi splendens.—A companion plant to the above, with white petals and sepals and rich plain-purple lip. These are two splendid acquisitions. F.C.C.

Dendrobium Cheesingtonense, *Gatton Park* var. (Sir Jeremiah Colman, Bart.).—Large and beautiful. The colour is chrome-yellow with rich crimson blotch on the lip. A.M.

Dendrobium Cybele, *Gatton Park* var. (Sir Jeremiah Colman, Bart.).—Another big bloom, with round, well expanded lip, with blackish-crimson blotch in the centre, and rings of yellow, white, and purple around it. The flower is rich and fine. F.C.C.

Helleborus Peter Barr (Barr and Sons).—Mr. W. Barr has done good work with the Hellebores and this is one of his best. The flowers are large, umbellate, drooping, clear, of a rich port-wine colour, in a lax branching inflorescence, held 1ft or more high, and thus very effective. A.M.

Lælio-cattleya Daffodil (Armstrong and Brown).—Parentage: *L.-c. Mercia* × *L. Jongheana alba*. Quite unique. It is not a large flower, but is very lovely. The form is close and round. The petals are 1½in broad, and of a pale soft creamy colour. The lip is rich orange-yellow all through. A.M.

Lælio-cattleya Hélène Maron (Messrs. Ch. Maron and Sons, Brunay, France).—Parentage: *L.-c. Imperatrice de Russie* × an unknown form. Flowers of immense size; lip 4in deep, nicely frilled; the petals broad, thick, and heavy. These and the sepals are pale rosy-mauve; and the lip is of the same colour, with purple in front, lined red in the throat, over pale yellow. A grand acquisition. A.M.

Maxillaria lutea alba (Walter Cobb, Esq.).—A splendid plant was shown. The segments are ¾in broad, sinuous, creamy at the base, and rich brown above. A.M.

Odontoglossum Clytie (Charlesworth and Co.).—Parentage: *Od. Edwardi* × *Pescatorei*. It partakes of both parents, but mostly of the *Edwardi*. The colour is heliotrope blotched with crimson. A.M.

Sophro-lælia Felicia (Charlesworth and Co.).—Parentage: *Lælia præstans* × *Sophro-lælia Heatonense*. A large, rich, well built flower, radiating, with well cut segments, of a bright crimson. A.M.

Egham (Surrey) Gardeners'.

CULTIVATION OF SWEET PEAS.

At the meeting held on February 5, Mr. J. Record presiding, Mr. T. Stevenson, of The Gardens, Woburn Place, Addlestone, read a most interesting paper on the above, commencing with the introduction and giving the names of first varieties, and continuing down to the present date, alluding to the good work being done by the Sweet Pea Society and several nurserymen, mentioning the fact that one of these sold twenty tons of seed last year. Mr. Stevenson advised deep cultivation and well manuring, sowing in September on light soils to stand the winter, and in pots the first week in February for the main supply, growing them cool and planting out in April. He also gave valuable hints on after culture, a list of select varieties, and methods of showing for exhibition. A profitable discussion followed. Mr. Stevenson is a successful exhibitor, and holds a gold medal. A hearty vote of thanks was given.

FRUITS UNDER GLASS.

Mr. J. Record presided on February 19, when Mr. J. Lock, The Gardens, Otlands Park, Weybridge, gave a thoroughly practical paper. Dealing first with the culture of Pines, which were easily grown provided a good heat was at command and they were liberally treated. Melons were the next subject. These Mr. Lock grew in good loam with mortar rubble, planted out when in the first rough leaf 3ft apart, and grown with one stem, top-dressing when the fruit had set. Peaches and Nectarines required careful attention being given to disbudding, and a liberal use of the syringe, and should be well attended to in the matter of watering. Grapes were also included, and recommended to be grown strong from the first by cutting the young rods back a good way each year until the space was filled. A good discussion followed the lecture, chiefly on the dropping of Peach buds and setting of Muscat Grapes. A hearty vote of thanks was given Mr. Lock. The exhibits included seven fine specimen plants of *Azalea Deutsche Perle*, Italian Hyacinths, and double Daffodils from the president (gardener, Mr. Lingwood); a good group of Callas from C. H. Austin, Esq. (gardener, Mr. Worsfold); and some well-flowered Primula stellata from W. G. Bellair, Esq. (gardener, Mr. Lacey). There were two exhibits of Curled Kale from cottagers. Mr. White obtained the prize.—H. P.

Bristol Gardeners'.**ORCHIDS.**

A most enthusiastic meeting was held on Thursday, February 27, at St. John's Rooms, presided over by Dr. Shingleton Smith. A large gathering of members attended to hear a lecture upon "Orchids" given by Mr. Hunking, gardener to Alderman Dix, Hampton Lodge. In his introductory remarks the lecturer said that as the orchid family was so comprehensive, and there being so many species, it would be impossible for him to deal with them all. In no department of horticulture had such rapid strides been made as with orchids. Methods had changed with the times. Formerly the supposition prevailed that orchids were very difficult to cultivate, chiefly owing to the belief that they required a very high temperature; but now that cultivators better understood their requirements, it was found they were no more difficult than other plants. Success greatly depended upon the rest given after growth was completed. Liquid manure proves beneficial if used for damping when the plants are in full growth. A paved floor is to be avoided. The lecturer said the floors at Hampton Lodge are of coke about 2ft thick, well saturated with liquid manure. Ventilation, shading, build of flower, insect pests, and diseases were dealt with in this very interesting lecture. Dr. Shingleton-Smith opened the discussion, which was well maintained by Messrs. Binfield, Curtis, Kitley, E. T. Parker, Scott, Jennings, Shaddick, Lee, and Woodward. Hearty votes of thanks were given both to the lecturer and the chairman at the close. Certificates were awarded to Mr. E. T. Parker for *Cypripedium Harrisianum*, and to Mr. Hunking for *Dendrobium Artemus*. Only one exhibit of *Freessias* was staged; first prize was awarded to Mr. Weare, gardener to Mrs. Hall, Redland.—H. W.

Guildford (Surrey) Gardeners'.

On Thursday, February 26, twenty-seven members of the above association, at the kind invitation of Messrs. Sutton, paid a visit to Reading in order to inspect the fine collection of *Primulas* and *Cyclamens* contained in their spacious range of glass houses at the trial grounds. On their arrival at the central establishment in the Market Place, they were accorded a very hearty welcome by Mr. Leonard Sutton, and under the courteous guidance of representatives of the firm, were conducted over the huge seed warehouses and offices, where everything pertaining to the storing, cleaning, packing, and distribution of seeds to home and foreign parts is carried on. The glass houses being situated at the east end of the town, a tram car was requisitioned to carry the party thence. On entering the glass houses, Mr. P. F. Sutton, one of the partners, cordially received the party, and under the guidance of Mr. Macdonald, the many varied forms of *Primulas* in their great diversity of colour, numbering some 14,000 plants, were inspected. The *Cyclamens*, too, attracted much attention, as did also the fine collections of *Cinerarias* and *Calceolarias*. The sight of so many flowers was indeed feast to the eyes; and through the generosity of the firm, who kindly provided a substantial tea, a most enjoyable and profitable afternoon was spent. Votes of thanks terminated an interesting visit.—J. G.

Chester Paxton.

On Saturday last a presentation was made to the secretary, Mr. Miln, of a gold medal at the annual dinner of the society, held at the Blossoms Hotel. The president presided, and he was supported by the worthy founder of the society (Mr. J. D. Siddall), and Messrs. Robert Newstead, G. P. Miln, R. Wakefield, E. Stubbs, John Weaver, &c.

Mr. Siddall proposed the toast of "The Paxton Society," mentioning that the society was doing an excellent work in promoting and improving fruit culture in the district. There were many acres of land in the neighbourhood which had been profitable for fruit culture because of the actions of the Paxton Society. It remained for their society to demonstrate that good fruit could be grown in the neighbourhood of Chester.

Mr. Jos. Ryder, referring to small holdings, said the Paxton Society had been preparing the small holders to cultivate their soil better and to go in more for fruit culture. Those who travelled about the country saw the advance cottagers had made in cultivating their small gardens, growing fruit trees, and keeping their plot of land in such excellent condition, and members of the society felt proud of the great success which had attended their efforts in that respect. The society should receive a grant, either from the town council or the county council, because in these days of free education, grants were given so liberally that they could not do better than apply for recognition.

Mr. J. D. Siddall made the presentation. He failed to find words to express his high appreciation of Mr. Miln's services. In support of his testimony he quoted figures showing the rapid progress made by the society since 1891. In 1907 the amount of prize-money offered per the schedule was: Fruit classes, £48 12s.; *Chrysanthemum* classes, £42 17s. 6d.; total, £91 9s. 6d. In 1891 the figures were: Fruit classes, £20;

Chrysanthemum classes, £8; total, £28. The number of subscribers last year was 341, and in 1891 they totalled 80; while the number of classes in the former year were: Fruit 74, flowers 18, total 92; and in the latter year they were: Fruit 39, flowers 9, total 48. There had also been a marvellous increase in the merit of the individual exhibits, and all this was largely due to the work of Mr. Miln, who had set them a splendid example.

Wargrave (Berks) Gardeners'.

Mr. W. H. Scott read a good paper before the members at their last meeting, the subject being "Do plants sleep?" He referred to the various movements noticed in certain plants at different times of the day according to the varying state of the weather, temperature, and light. He advised all gardeners to notice the habits and peculiarities of plants under their care, and perhaps some day the question may be solved. A good discussion followed, and many other points not touched upon by Mr. Scott were dwelt upon. The exhibits comprised three pots of *Hyacinths* (Mr. J. Blencowe), three pots *Lachenalias* (Mr. Blencowe), and a fine flowered *Coelogyne cristata* (Mr. Pope), the first and last named obtaining certificates.

Newport (Mon.) Gardeners'.

At the meeting held on February 12, Mr. House, of Bristol, represented that association, and gave a lecture on herbaceous plants. The lecturer gave as his definition of an herbaceous plant, those that lose their flowering stems once a year. He said the subject was far too great for one evening's consideration. Plants for sunny positions, and also those that grew best in shady places, were dealt with. The demand for herbaceous plants was on the increase, and young men with a knowledge of them were rather scarce. The lecture was about the best we have heard during the session.

On February 26 the annual dinner and social meeting was held, when forty-eight sat down, the chair being occupied by Colonel C. T. Wallis, High Sheriff of Monmouthshire. The Colonel was supported by the vice-presidents, Dr. C. Brooke Gratte, Messrs. E. Basham, A. Birt, T. W. Francis, and J. Pegler. Mr. L. Stafford exhibited a magnificent collection of British butterflies and moths, numbering several hundreds, and on the proposition of the chairman, seconded by Dr. C. Brooke Gratte, it was unanimously agreed to present him with the association's first class certificate. A capital programme was contributed to by friends.—J. W.

Trade and Miscellaneous Notes.**Messrs. Carters' New Honour.**

We are informed by Messrs. James Carter and Co., 237, 238, and 97, High Holborn, London, that they have been appointed seed merchants to the King of Siam, whose coat of arms is here shown. The firm also hold the Royal Warrant of appointment to our own King, and also the Prince of Wales. This is the seventy-first year of their establishment at Holborn, where they settled in 1837. They have also sent us their annual publication, "Gardens and Lawns," which is an excellent guide to the laying-out of lawns, bowling-greens, cricket pitches, tennis lawns, or golf greens; and to the cultivation of flowers and vegetables from seeds. No firm spends more time or money on the arrangement of their publications than Messrs. Carter, whose issues are therefore always deserving of careful consideration.



Siamese Royal Coat of Arms.

New Folding House-steps.

Heathman's lattice steps have been well known for many years, but had the disadvantage of being 6in thick when closed, and it is an item of public interest to record the fact of a great improvement having been effected to enable them to fold up so that the closed thickness is now only 2½in. The system of construction combines very light weight with great strength, and it is a boon to shippers to save freight by the close packing of these steps. They are also made without the supporting legs to close to only 1½in thick, and open to 6in width of tread, which is very comfortable for the feet of the users. The works of Heathman and Co. at Parsons Green, London, S.W. are again being enlarged to meet the increasing demand for this firm's clever inventions.



Apple, Smart's Prince Arthur.

On February 11, at the exhibition of the Royal Horticultural Society at Westminster, four varieties of Apples, namely, Chelmsford Wonder, Sandringham, Newton Wonder, and Smart's Prince Arthur, grown by Mr. W. Roupell, Harvey Lodge, Roupell Park, S.W., "within five miles of Charing Cross," were staged in baskets and received a bronze Banksian medal, and also a cultural commendation. The specimens were all good, and Smart's Prince Arthur is so seldom seen, and also so distinctive, that we secured a drawing for reproduction.

With reference to this variety, Mr. Roupell writes: "I have the pleasure to furnish the following notes made during the years that I have grown this variety. It is hardy, and bears well, especially when grown as an ornamental tree and allowed to droop. It is very firm and good either for dessert or cooking, requiring no sugar when baked. The pendent shoots, if left unpruned, often terminate in three good sized Apples. The fruit hangs till late in autumn, and with me it takes a high colour and keeps till June. I recommend the variety as suitable for a lawn instead of a forest tree."

This is the Lady's Finger Apple of Kent, said by Dr. Hogg to be at one time largely grown in the orchards around Maidstone. The skin is orange-yellow, with a greenish tinge in some places, with broken streaks of crimson.

An American Apple Report.

American methods of fruit culture do not as a rule apply to orchards in England. A report, however, of a most thorough survey of the Apple orchards of Orleans and Wayne County, New York, carried out by the Cornell University Experiment Station, contains many interesting points, which may prove instructive to our own growers.

A large amount of attention was given to the results of tillage, i.e., growing crops between the trees, as contrasted to orchards grown in sod; the conclusions drawn being that the tilled orchards cropped much better both as to quality and quantity than the orchards in sod, and that young trees planted in tilled ground undoubtedly did much better than when planted either entirely in sod, or in partially tilled ground, the trees being left in a narrow strip of grass. This, of course, simply bears out our own experiments, although tillage, in the American meaning of the word, is not practised to any extent in this country. In the orchards under survey it consisted of growing and ploughing-in various green crops, or growing hay and using it when cut as a mulch for the trees. An examination was also made into the results of applying manures to the trees, and here again the fruit was much finer and greater in quantity from the manured orchards.

Farmyard manure was chiefly used, supplemented by artificials in some cases. The average increase is given as 257 bushels, against 202 bushels per acre in the unmanured orchards. Some determinations were made of the amount of plant food removed by a crop of Apples, and contrasted with the amount removed by a crop of wheat. The results being, in a crop of Apples giving 300 bushels per acre with leaves and growth taken into account, about four times as much potash and more nitrogen and phosphoric acid than in a crop of wheat giving twenty bushels of grain and 2,500lb of straw, and that the 300 bushels of fruit alone require more potash, and nearly half as much nitrogen, as is required to grow the wheat and straw together. It is pointed out, however, that the Apple roots go deeper than the wheat, and thus have more soil to draw their supplies from.

Perhaps the most interesting subject in the survey to English growers is the report of the spraying for scab. The sprayed orchards easily beat the unsprayed, both in quality and quantity of Apples. Even only one spraying did good, and in some cases two proved all sufficient; but in most cases three was the only safe number. The times of application are important: first, just before the blossoms appear; second, immediately the blossoms fall; third, ten to fourteen days after the second. The favourite spray fluid was Paris green and Bordeaux. Unfortunately, the

amount of Paris green used is not given, but the amount of copper sulphate recommended is 6lb to fifty gallons of water for the early sprayings, and 4lb for the later.

The most important spraying is the one immediately the blossoms fall, and the fruit from orchards where this spraying was omitted was invariably scabby. Spraying in wet weather is often attended with burning of the leaves, and this is explained by Prof. G. W. Cavanaugh as being due to the breaking up of the compound formed between the copper and the lime in the preparation of Bordeaux mixture, by the action of the carbonic acid of the air, owing to the fact that the water-slaked lime gradually changes to the form of air-slaked lime if it remains wet on the trees for long. The combined lime itself is changed, and the copper set free. The Professor advises the use of a good excess of lime in the Bordeaux if spraying is to be undertaken in wet seasons. It is the free copper which causes the burning of the leaves. No damage results where the spray dries rapidly on the trees.

The question of pruning is also gone into, and the benefit accruing from the painting of large wounds is pointed out; but little of this part of the report applies to our orchards, save that the ideal time for pruning, according to Prof. Bailey,



Apple, Smart's Prince Arthur.

is in the spring before growth begins. Canker in fruit trees is reported on, the most successful treatment being (1) to prune out the limbs that are badly diseased; (2) spray with Bordeaux mixture, doing all the limbs and trunk; (3) most important of all, get the trees growing well.

In conclusion, a few figures relating to the actual value of spraying are of interest. The average yield in bushels per acre of sixty sprayed orchards was 280 bushels; that from 107 unsprayed orchards was 253 bushels.

The price per barrel: sprayed orchards, 8,430 barrels, average price \$2.02; unsprayed orchards, 6,365 barrels, average price \$1.80.

Average income from sprayed orchards per acre \$77.84; unsprayed orchards per acre, \$63. This works out at about £3 per acre average increase in value.—W. M. B.

Fruit in New York State.

From the secretary of the Western New York Horticultural Society (Mr. John Hall, Rochester, N.Y.), we have received a copy of "The Rochester Herald," containing some excellent photographic illustrations of that society's recent convention. It appears to have been largely attended, and the fruit exhibits were truly "great."

Young Gardeners' Domain.

* * The prize is awarded to Mr. James Pogson ("P. W. A."), The Gardens, Welbeck Abbey, Worksop, Notts, for his notes hereunder:—

Variation in Plants.

Noticing a break in some Freesias that were being cut the other day, it flashed across my mind what possibilities there are in every garden, and in every gardener, for the raising of new plants. In this particular Freesia the flowers were not on one plane as is usual, but arranged distichously in a lax raceme. The stem was stouter than the type, and the flowers smaller. Whatever its merits or demerits, it was a break from the usual. This is all that is needed. When the grower finds this it is for him to find out if anything good can be got from it, either by careful selection or crossing.

The study is all absorbing; the results both interesting and useful, for something is bound to be learned. What number of chances have been thrown away in every garden none can know. We all know the history of the Shirley Poppy. It is one of Nature's most fascinating stories, and yet what is done with the Poppy can be done with a host of other flowers.

The Carnations of to-day have been brought to such perfection that no one thinks of the insignificant forerunners to which we owe them. Again, the Tulip is catalogued in hundreds, each individual nurseryman trying to out-do the other in point of numbers, and yet all of these have originated from a few species. Anyone can enjoy the pleasure of watching Tulips "sport," so strong is their tendency to change their original characteristics.

There are also the Viola, the florists' Auricula, the Primula, Cyclamen, Chrysanthemum, and hosts of other common plants, both exotic and native, which are continually "breaking" into something different; and with a little forethought and help it is from these breaks that we get our new varieties. Look what beautiful forms we now have in Roses, or among our ornamental trees and our conifers. Last, but not least by any means, I cannot leave without a brief reference to the less conspicuous, but economically more useful, plants known as vegetables. How few stay to think from whence originated the whole Brassica tribe of the garden, the succulent Asparagus and the humble, but greatest of all the vegetables, the Potato.—P. W. A.

Shrubs for Effect During the Winter Months.

Shrubs are by no means as widely grown as they deserve to be, especially the early-flowering varieties which have the recommendation of flowering during the duldest period of the year, when a flower, be it ever so small, is much more appreciated than later. Occasionally one may observe an isolated plant of *Daphne Mezereum* struggling for existence in some odd corner, when, by grouping a few of these together and utilising a dwarf evergreen shrub, such as *Ruscus hypoglossum*, to cover the ground, thus showing the flowering twigs to full advantage, a show of flowering shoots can be had during the winter and spring months. Many an unsightly corner could be made bright in this way; and when once planted they require very little attention. The majority of these shrubs thrive quite well in any ordinary deep garden soil. Soil suited for *Ericas* and *Rhododendrons* ought to be of a peaty nature. At the present time the *Witch Hazels* (*Hamamelis*) are in full bloom. Grouped together with a base of *Gaultheria procumbens*, the beauty of the plants are better shown than if they were grown singly. *Hamamelis arborea*, with primrose yellow petals, and *H. japonica*, with paler coloured flowers, are two of the best.

A shrub which ought to be more grown if only for the delicious fragrance of its flowers, is *Chimonanthus fragrans*. It flowers during the winter, the flowers being of a brownish-yellow colour; but as it requires the shelter of a wall, except in warm localities, I would not recommend it for grouping. The *Jessamine* (*Jasminum nudiflorum*), with its bright yellow flowers, is the best winter-flowering climber we have. Planted close to Yews, or some other evergreen trees, and allowed to climb naturally through the branches, it is more effective than when grown on a limited wall space. The *Strawberry tree* (*Arbutus Unedo*) is a lovely shrub at this time of the year, with its bright red fruits resembling Strawberries. One I saw growing in a sheltered corner of a Midlothian garden was a grand picture. *Skimmias* are also well worthy of a place, with their bright red berries during the winter. *Aucubas* are suitable shrubs for a town garden, with their mottled foliage, also the green varieties, and if a male plant be planted close to the female ones, a good crop of berries are sure to be had.

If a damp situation is to be planted, some of the Willows and the Dogwood are conspicuous subjects with their coloured bark. *Salix purpurea*, with purple bark, and *vitellina*, with yellow bark, are about the best, and ought to be cut hard back in spring to induce a good supply of young wood. Two suitable Dogwoods are *Cornus alba* and *sanguinea*. Others are worth growing on account of their variegated foliage throughout the

summer. The *Golden Privet* is another shrub hard to beat for effect during the winter. I once saw it dotted perhaps about every ten feet through a bank of *Hypericum calycinum*, which I may say was bright all the year round. Amongst the *Ericas* for winter flowering, *carnea* is unequalled for edging beds, and flowers from January onwards. *E. condonoides* also flowers during the winter, and attains a height of about 8ft in the South. *E. mediterranea* is worth growing, and comes in useful at Easter.—J. S.

Labelling Rock Plants.

It was with the greatest of pleasure that I read the winning essay ("Should Rock Plants be Labelled?") by Mr. F. Cave. I strongly uphold his opinion that they should be, as labelling is very helpful to visitors. He states that labels are well served, and cheap enough for everyone. Quite so; therefore I will just mention one that adapts itself to the purpose very well. By getting a piece of lead you can make your own, providing you buy the box of letter stamps. Cut the lead into blocks, say 6in or 7in by 4in, and then cut them from corner to corner. Having done so, stamp the name in with a hammer, and then give them two or three coatings of white paint, rubbing it in with a piece of rag. This will show the name up quite distinctly against the dark surface. You will find this an everlasting and not unsightly label.—T. TELFORD, Lowther Castle.

Changing Places.

At the present time of the year the above topic will doubtless be very seasonable to many young members of the gardening fraternity, for during the months of February and March there probably are more changes in the bothy than during any other season of the year. As we leave the old place, some going to the nursery, others to fresh situations, we generally find we are more attached to it than we ever realised before. If our destination is a nursery, there to wait for a fresh situation, it is probable that we shall often wish ourself back again in the old bothy, especially if suitable offers for fresh places are slow in coming. When the change, however, is straight into a fresh place the young gardener quickly adapts himself to his new surroundings, more especially if the place is to his liking, and if pictorial postcards of the mansion are procurable, he soon sends some to his friends, with a descriptive account of his new "shop."

There is no doubt that this changing is very beneficial to the young gardener in many ways. He is brought into contact with fresh methods; and certain plants which in previous places may have been described as "miffy subjects," here grow like weeds, and most young gardeners very soon set themselves to study the reason why. Nearly every place has some particular speciality, the knowledge of the successful culture of which proves most useful. Climatic conditions in different counties vary largely. Plants which are considered hardy in some counties require the protection of glass in others, and in the vicinity of large manufacturing towns fogs create a trouble undreamt of by those who have not experienced them. Soils, too, may differ greatly in quality and texture, and it is in the highest degree creditable to him who, with an inferior soil, produces excellent cultural specimens.

One might write much more on this subject; but perhaps some other contributors will give us a few instances of variations they have noticed in different counties.—F. W. S.

Tulips

Some of the earlier Tulips were discovered in the year 1550 by an Austrian, and in about twenty-one years afterwards *Tulipa Gesneriana* was cultivated. It first came to England about the year 1577. *Tulipa suaveolens* is credited the parent of all our early Tulips, and gives rise to the well-known Van Thol varieties. *Pottebaekkers* are our mid-season Tulips, and are derived from *Gesneriana* x *suaveolens*.

There are three groups of florists' Tulips, namely, rose, hyblœmen, and bizarre. The first two have white grounds, but the bizarre has a yellow ground. These three classes are divided up again into feathered and flamed flowers. Darwin Tulips are varieties derived from *Gesneriana*, and of late years seem to be in the greatest demand; but unfortunately they are rather delicate. *La Merveille* is about one of the best up to the present. *Margaret* is a very good forcer, and useful for decorative purposes also. Cottage Tulips are very pretty, as of late years the colours have been so much improved. They were discarded by nurserymen, then the cottage gardener grew them. They nearly always revert to the yellow. Some of the best are *Primrose Beauty* and *Gesneriana lutea*, both yellow; *viridiflora*, yellow and green; and *viridiflora tarda*, a pure green. Parrot Tulips are also pretty, but not so useful as the others. Their native country has never been found out. A few of the best are *Mark Graaff*, *Feu Brilliant*, and *Lutea major*.

Tulips are found scattered in three different continents, Europe, Asia, and the northern part of Africa. There is a beautiful one found right in the Himalaya Mountains called

stellata, and of all the different varieties, there is only one found wild in Britain, *Tulipa sylvestris*.

Most people have great faith in Dutch bulbs, but I believe quite as good bulbs can be had at home. There is a bulb farm close to Dublin belonging to Messrs. Hogg and Robertson, and any person interested in Tulips, being there in the month of May, should visit them. It is a sight worth seeing. Acres and acres of Tulips are in full flower, Darwins a specialty. The soil there is admirably suited for the purpose, being very sandy. This bulb farm is called "Holland in Ireland." I should think it is a very appropriate name, for if they can beat such Tulips in Holland they must be more than good.—P. B. W.

The Starting of Lads in Gardens.

This is the season of the year when many journeymen are thinking of changing for the double purpose of gaining wider experience and perhaps improving their financial position. In large gardens where a number of journeymen are kept, the first journeyman leaving would probably result in a general advancement of the remaining men in that establishment, and perhaps the present lad or lads employed in either the fruit or plant departments would be given a small charge; or if in the kitchen garden, put on more important work than a lad generally starts at, thereby making a vacancy for other lads. As is often the case, local village lads are engaged. In engaging a lad the gardener is sure to choose whoever he thinks is the more intelligent. This is where good early training comes in. Such a lad ought always to be under the supervision of a careful man, either the head gardener himself or the foreman, to give him every encouragement to take a keen interest in his work, pointing out to him the best and quickest way to do things. Another point is teaching him to be careful in his personal habits. A year or two at ordinary lad's work should suffice for the gardener to decide if he is likely to get on in gardening. If he gives satisfaction in the work he is set to, he should be given more important and better work. This, I am sure tends to make a lad keen, interested, and willing to work. Let him see that what he does well is appreciated.

On the other hand, should a lad turn out dull, it would be to the lad's own interest for the gardener to discharge him rather than try to push him through. Such a lad would never have the chance to get on as the more intelligent lad will. I know of a case of a journeyman being recommended for a vacancy as leading hand in the pleasure grounds. The gardener in charge, being newly appointed, was making alterations, planting choice creepers, Roses, and herbaceous stuff, and required a competent man to attend to these. He engaged a journeyman who was not up to his work, and did not give satisfaction, consequently the gardener had to discharge him. This caused delay and annoyance to the gardener himself, and was a disappointment to the journeyman in question. In conclusion, I would add that it behoves the gardener or foreman to encourage all lads to respect those over them, not always giving them the roughest of work, but by giving them changes, to make them keen and interested.—R. O.

Watering in the Houses.

The use of the water pot is, without doubt, the most important part of the every-day work of young men under glass; and upon whether watering is done with the proper amount of discretion on the part of the operator depends the successful cultivation of fruit and plants. It matters not if the potting (in the case of pot stuff) is done in the highest standard, it is absolutely useless unless it is followed by forethought in the use of the water pot. Though it is generally looked on as just an everyday occurrence, it requires far more study than it generally gets, and the man who does not look on watering as an interesting part of the day's work would be far better suited by following some occupation other than gardening. The conditions governing the watering are various, the weather being perhaps the chief. For instance, in dull or wet weather there is far less water required at the roots, because the atmosphere generally is more humid, consequently there is less evaporation through the leaves, and therefore less moisture is called for from the roots. In bright warm weather the evaporation is far greater, making a greater call on the roots for plant food to keep up the supply, hence the necessity of damping down and syringing to keep the atmosphere in a humid condition. Other points to be observed are the class of plant to be watered, whether its nature is to revel in little or much water; or what stage of growth the plant is in, whether at rest or in full growth; or if evergreen or deciduous, or bulbous. These points should be borne in mind. A little study of botany will be found a great help, and at the same time make watering an interesting occupation. Taking bulbs, for instance, a properly matured and ripened bulb has sufficient food stored up to start it into growth again as soon as the conditions are favourable. Hence the necessity of proper treatment after flowering, to get sufficient plant food stored up to bring it into a proper state for resting. But it is too often the case that

as soon as the flowering period is passed the plant is put out of sight and is forgotten. Newly potted plants cannot be too carefully watered. If the soil is in a proper moist condition a spray over with the syringe will do more than a lot of water at the root till they become active in the new soil. It just requires a careful observance and reasoning.—E. LANE, Branches Park Gardens, Cowlinge, Newmarket, Suffolk.

Summer Bedding.

At this time of the year, when plans are being made for the bedding, a few remarks may be found useful. Seeing the following used in a well-known garden in the South, I thought them very effective. A narrow border 2ft or 3ft in width was made to look very showy with *Calceolaria amplexicaulis* and Candytuft (Carter's White Pigmy). Plant the *Calceolaria* in a double row 18in apart in the rows, and the rows 1ft apart, the second row running alternately with the first. Then sow a little of the seed between each plant. The effect obtained is very striking with the white Candytuft in between the green foliage of the *Calceolaria*, and both blooming profusely right up to the time of taking the *Calceolaria* cuttings. *Heliotrope* and the same Candytuft used in this manner is to be recommended. *Lobelia Suttons' Compact Dark Blue*, and red *Virginian Stock*, the former planted about 9in apart, are other good subjects for the same purpose. For a bed where a mass of blue flowers is required the annual *Delphinium*, Suttons' Queen of the Blues, planted alternately with *Lobelia speciosa*, will be found to look well. The trailing habit of this *Lobelia* makes a splendid groundwork for the *Delphinium*. The *Delphinium* should be planted about 1ft apart, and it will be necessary to cut the seed pods from the latter as they appear, thereby improving their appearance, and helping to keep them in bloom for a longer period. *Salvia patens* planted 18in apart, with *Heliotrope* between, is also very effective. Although rather brief, these few notes may be of service to some readers.—THOMAS HUNTER, Holker Gardens, Lancashire.



Seasonable Hints.

Colonies which are found to be short of food should not be fed with syrup while the weather remains cold. The best winter food is candy, and in administering this it should be borne in mind that bees do not always cluster directly under the food hole in the centre of the hive; in fact, they seldom do so, unless they are an exceptionally strong lot. Weak colonies always congregate against the warmest and driest side or corner of the hive, and in either position it must be manifest that the central hole intended for the purpose is of little use for feeding. Under these circumstances the quilt is found to be an additional advantage, as without disturbance, but by simply turning up the corners, the whereabouts of the cluster can be ascertained easily, and a good slab of candy placed above them. In skeps it must be put in at the feed hole, or thrust upwards from below between the combs. In cases where it is impracticable to put the food over the cluster of bees, if the hive is carried indoors into a warm apartment until the inmates are rendered sufficiently active to attack the food there will be little danger of their leaving it while the supply is kept up.

Hives which have been strong in the autumn and well supplied with stores have been known to perish during a protracted frost, through having eaten up the stores on one side of their hive, and being, through the continued cold, unable to cross to the other. As is generally known, strong stocks store their honey on both sides and at the back of the hive, and make their nest near the front, evidently with the idea of being able to guard the entrance. This is the circular, or nearest approach to the octagon form of hive, and the cluster of bees moves gradually on their stores during the winter, and thus revolve, as it were, round the inner surface of the brood nest, making a complete circuit and clearing the combs of food as they go, and this forms the chief advantage which the circular form of hive has over the bar frame. In the bar frame this circuit cannot always be made, since they are often so shallow from front to back as to make it impossible.

A prosperous stock moves in one direction on their supply, and consequently when the store on one side becomes exhausted there is a danger of the stock perishing through inability to move across the cold empty combs, and thus they may perish with plenty of food in the hive. In the admirable Quinby and Langstroth hives, in which the bars are longer from front to back, the bees consume their stores from the front, and simply draw back upon their reserve, moving all the while between the same combs.—E. E.



Hardy Fruit Garden.

STRAWBERRIES.—In planting Strawberries at this season it will be found advisable to choose rather damp weather. The plants will be more likely to make large clumps another season if lifted now with as little check as possible, and to this end they should be taken up with but the slightest, if any, damage to the roots and with good balls of earth adhering. If the land is very wet at planting time it may be wise to trample to the least extent upon it, but when dry it should be made firm, as Strawberries do not succeed so well in light loose material as in that which is fairly solid.

GRAFTING.—It will be well to make preparations for this work before long. Clay or wax, with the tying materials, should be had in readiness, and the heads to be operated upon may be cut back. Pears will soon be ready for working, as the stocks are now on the move. Do not attempt grafting unless the bark opens easily; this more particularly applies to large stocks that must be crown or rind grafted.

RASPBERRIES.—We are still planting these, but to continue the work much later may prove dangerous, as we know from experience. A spell of dry typical March weather may cause the newly planted canes to start slowly into growth, and perhaps many will fail, so that growers will be well advised to get these into the ground with the slightest possible delay.

APRICOTS AND PEACHES.—It may not be out of place to renew the warning we gave here a fortnight ago in connection with covering the open blossoms of these. It is useless to take the trouble of growing the trees all the year, and to lose the crop of fruit merely for the sake of a small amount of trouble in covering the trees at flowering time.

WALL TREES.—Old trees should have assistance given them, either in the shape of liquid manure or mulchings. If some of the old soil is removed from the foot of the wall, it may be replaced by good loamy earth, which has bonemeal and wood ashes added. Dressings of well-rotted manure in ample thickness will be of benefit. It is not wise to continually add fresh soil without first removing the old, as this tends in time to cover the roots too deeply. In most gardens it is impossible to avoid cropping the borders in which wall trees are planted, but this cropping should be carried out with little damage to the roots of the trees; and the borders should not be planted within 3ft of the walls.

STANDARDS IN GRASS.—Make an effort to clear away all grass and weeds within 3ft of the stems of young trees. It has now been fairly well proved that unless the roots are kept free of grass for the first few years after planting, this has a deleterious effect upon their growth and general health.—J. W., Evesham.

Fruit Culture Under Glass.

EARLIEST FIGS IN POTS.—The trees started late in the autumn will now be swelling their fruits, and will need assistance in the shape of liquid manure in a tepid state or a good fertilizer, the latter given as a surface dressing, well watered in. Close stopping will be necessary as soon as the fruits swell freely and the foliage is fully developed. Stop the shoots at the fifth or sixth leaf, and removing any useless spray growths not required. The very early varieties, such as St. Johns and Pingo de Mel, are inclined to make weaker growths than the Brown Turkey, and to get good fruits close stopping is necessary, also liberal feeding. As the fruits finish swelling less moisture overhead in the shape of syringing should be given. Excess causes the fruits to spot and drop. A more liberal temperature may now be maintained—65deg at night and 10deg to 15deg higher by day.

TREES PLANTED OUT.—Where the earliest crop is obtained from permanent trees in borders, the fruits are at times much too thick, the wood also; and thinning is required. The foreright shoots may be rubbed out, pinching the others left for fruiting, and training in any terminal growth required for extension. Care must be taken that the roots are moist. If at all dry the fruits at the final swelling will drop. With badly ventilated houses or a sudden drop in the temperature the same results follow, and the fruits spot badly. Trees at all gross should be allowed to carry a heavier crop, and rich food at the roots should be avoided. Trees requiring food may with

advantage get a surface dressing of decayed manure; which will also prevent the roots drying so quickly.

BARREN FIG TREES.—At times the old trees of the Negro Largo type makes too much wood, and fruit sparsely, and now with late houses is a good time to overhaul the boilers before growth is active. The cause is often a too rich root run, and by restricting the roots to a limited space, less wood is made. The gross roots should be cut, and only the fibrous ones left in, replacing in position; avoid manures. In the soil, use good loam, to which has been added a liberal proportion of old mortar rubble and wood ashes, and the soil in the border well rammed as the work proceeds. These trees should not be forced after the cutting back, and if the wood is at all thick it is a good plan to thin out some of the old growths, and get new wood this season. This latter advice is more applicable to trees on back walls.—G. W., Brentford.

The Plant Houses.

CAPSICUMS AND SOLANUMS.—In these two genera there are quite a number which have ornamental fruits. Grown in pots these are very useful for greenhouse and conservatory decoration in autumn and early winter. Their cultivation is very simple. Sow the seeds in March in pots filled with light rich soil, placing them in the propagating house. As soon as the seedlings are 2in to 3in in height they may be potted off singly into small pots. Grow them in a warm house, near the roof-glass, where they will obtain plenty of moisture. Pot on as required, 5in pots will be large enough for the smaller growing sorts, 6in, 7in, and 8in pots may be used for vigorous varieties. For the final potting use a rich soil made up of three parts fibrous loam, and one part manure from a spent hot-bed or mushroom bed, adding plenty of coarse sand. Use the soil in a fairly lumpy state, as Solanums do better in this than in a fine close compost. Frequent syringing is necessary during the growing season to prevent the attack of red spider, to which the plants are very subject. Effective decorative sorts to grow are Capsicums, Long Red, Long Yellow, and Erect-fruited; Chilies, Crimson Bouquet, and Tom Thumb; Solanums, New York Purple and Long-white Egg Plants, and *S. integrifolium*. Several varieties of Tomatoes can also be used for decoration, the fruits the size of small Cherries being very ornamental. The three we grew last season were Sutton's Cascade (on one raceme I counted seventy rich red fruits), Red Currant, and Cherry Yellow.

CACTI AND OTHER SUCCULENT PLANTS.—These plants do not often require repotting. A surface dressing of new soil will smarten their appearance. The drainage of any from which the water does not pass away freely should be examined. If the soil is sour, wash the roots entirely free and pot in new soil. A suitable compost consists of four parts fibrous loam, and one part pounded brick and mortar rubble. For *Phyllocactus* add leaf mould and well-decayed manure. Place plenty of drainage in the bottom of the pots, using as small pots as convenient.

SELAGINELLAS.—The majority of species of Selaginellas are readily increased by cuttings in spring. They thrive in any light well-drained soil. For mixing with flowering plants, or as an edging to the greenhouse border they are highly valued. Several species are excellent for hanging baskets, *S. Galcottei*, *S. uncinata*, and *S. plumosa*, being worthy of special mention. Six good and distinct plants for the conservatory in addition to the above are *S. Watsoniana*, silvery white variegation; *S. rubella*, dark green; *S. Metteni*, light green; *S. Kraussiana*, often called in gardens Lycopodium; *S. Emiliana*, useful in small pots for dinner table decoration, and *S. Brauni*, a species with woody stems 2ft or more in height, best propagated by division.

GENERAL REMARKS.—Sow seeds of Celosias and Cockscombs in the propagating house. Start the main batch of tuberous Begonias. During favourable weather give plenty of air to the plants both in the houses and frames. Calceolarias, Cinerarias, and Carnations should receive special attention in this direction. Re-pot Saxifraga Fortunei, divide the clumps if more plants are desired. Cut back winter-flowering plants after flowering giving them a slight rest by reducing the supply of water, preparatory to starting them into growth to obtain cuttings.—A. O., Kew, Surrey.

Trade Catalogues Received.

Hogg and Robertson, Ltd., 22, Mary Street, Dublin.—*Farm Seeds.*
Chas. Kieft and Sons, Limmen, Near Haarlem.—*Spring Bulbs and Plants.*
Amos Perry, Hardy Plant Farm, Enfield.—*Hardy Perennials.*
Thos. S. Ware, Ltd., Feltham Middlesex.—*Hardy Perennials.*



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TOP-DRESSING FOR VINES (M. H.).—One of the best fertilisers is that known as Ville's No. 1 "Normal Manure," compounded of 8 parts or pounds of superphosphate of lime (high grade), saltpetre 4 parts, sulphate of ammonia 5 parts, and gypsum 7 parts, mixed, applying 4oz of the mixture per square yard. Or you may apply a mixture of 3 parts superphosphate, 2 nitrate of potash (saltpetre), and 1 part sulphate of lime (gypsum), mixed, at the rate of a quarter pound per square yard when the buds of the Vines commence swelling, and again after thinning the berries.

PEACH SHOOTS DISEASED (J. E. C.).—The shoots are affected by a peculiar form of brown rot (*Monilia fructigena*), which attacks the wood and causes the growth to perish at the buds, girdling the shoots and killing the parts above. There is also evidence of the grey mould (*Botrytis cinerea*). The chief cause of this fungoid infection is immaturity of the wood, this being very thin and unripened. All dead parts should be cut away and burned. The best repressive measure is lifting the trees, and this resulting in short-jointed, thoroughly matured wood, the malady makes little headway. The aspect (east) is a very unfavourable one, therefore extra fire heat should be given so as to ensure the thorough maturity of the wood.

GERANIUM LEAVES DISEASED (M. C. H.).—The leaves are affected at the edges by a shrivelling of the tissues in consequence of these being destroyed by some agency as yet undetermined, but commonly regarded as due to some physical, rather than parasitic cause. The chief cause is a cold, damp, close atmosphere, which retards evaporation, and consequently results in congestion of the cell contents, so that these perish, and the parts die and part with their moisture on a recurrence of elaborating conditions. The spots are also considered to arise from the same cause. There are also traces of the rust mite (*Tarsonymus* sp.) infection, for which there is no better prevention or repression than spraying or dipping the plants in tobacco water at intervals. But the great thing is a more congenial condition of the atmosphere—more warmth, light, and air, avoiding too much water at the roots, only supplying sufficient to keep the foliage from becoming limp.

ORCHIDS UNSATISFACTORY (T. L. E.).—The shrivelled condition of the pseudo-bulbs of the *Celogyne cristata* is probably due to the plants being kept too dry during the resting period. From their sickly appearance the plants are probably in a bad state at the roots. The pots or pans should be well drained, and a compost of about equal parts live sphagnum and fibrous peat, with the addition of some broken potsherds and a little silver sand. The plants should be raised moderately above the rim of the pot, and be firmly pressed down. The time for repotting is about this time, or a little earlier. The plants require a copious supply of water when growing, care being taken not to let the water rest in the centre of the young growths, as they are very apt to decay. When the growth is fully matured, an amount of water just sufficient to keep the pseudo-bulbs from shrivelling will be all that is required. The Cattleyas are probably brown and spotted in the leaves from their being kept too cool, and with water resting for a long time upon them. They require a genial moist atmosphere, and an abundant supply of water during the growing season, which should be administered from the watering-can, as they do not succeed so well when regularly syringed. After the pseudo-bulbs are formed water must be withheld, and the plants allowed a season of rest. Care must be taken to prevent them becoming exhausted during this period, as much injury may arise if the withholding of water be carried to excess. A long season of rest will cause the plants to flower more freely, and to grow more vigorously afterwards.

MAKING A VINE BORDER (South Wales).—Answers on all subjects of gardening on which information is required are readily given without charge to regular subscribers to this journal.

WATER IN UNHEATED PLANT HOUSES (G. C.).—It would be interesting to know on what grounds your informant bases his statement that "an open pan of water placed among plants in an unheated conservatory helps to protect them from frost." In reference to your question as to "how that statement agrees with the fact that plants outdoors suffer more from frost in a damp position than a dry one," our reply is that we fail to perceive any agreement between the two propositions. Heat is, no doubt, evolved in the freezing of water, though in the case of a "pan" of it, it is infinitesimal and inappreciable. But what after the water is frozen? You will then agree, we think, that the plants will be frozen, too, if the temperature continues falling.

MALMAISON FOR EXAMINATION (T. L. E.).—The plant is affected by the Carnation leaf-spot fungus (*Heterosporium echinulatum*), one of the worst enemies of the Carnation, and unusually prevalent this season, particularly on plants that have been layered late and kept in cold frames or other damp and close structures. The plants may be dusted with one of the powder fungicides, such as "Antiblight," "Strawsonite," &c., or sprayed with a solution of sulphide of potassium, 1oz to a quart of soft water, in which 1oz of soft soap has been dissolved. Or preferably, dissolve the articles separately in a pint of hot soft water, and add the soap solution to the sulphide solution. Apply by means of a spray diffuser, or syringe with a spraying nozzle. The plants should be removed from the house for treatment, as the sulphide is liable to discolour white paint. Afford the plants light and airy situations, and keep water from the foliage. It is a good plan to remove the worst affected leaves or parts and burn them, repeating the spraying or dusting at intervals of a fortnight or three weeks.

NAMES OF FRUIT.—Correspondents whose queries are unanswered in the present issue are respectfully requested to consult the following number. (Sender of Pear).—Althorpe Crasane.

NAMES OF PLANTS.—Correspondents whose queries are unanswered in the present issue are respectfully requested to consult the following number. (N. S.).—*Acacia acicularis*. (Subscriber).—1, *Begonia Helena* Under; 2, *B. virens*; 3, *B. heracleifolia*. (Sarah).—1, *Iresine Herbsti aurea*; 2, *Begonia argyrostigma*; 3, resembles *Rhynchospermum jasminoides*, but we cannot undertake to name flowering plants from leaves alone. (A Reader).—1, *Cheilanthes argentea*; 2, *Davallia canariensis*; 3, *Asplenium attenuatum*; 4, *Selaginella Wildenovi*; 5, *Polypodium appendiculatum*; 6, *Onychium japonicum*. (Desford).—Not *Echema*, but *Bilbergia nutans*.



Facts of Interest.

Perhaps that portion of the daily paper to which we often turn with the greatest interest is the summary of news, or paragraphs headed "News in brief." We get a foretaste of what is coming, and if any one subject is of particular interest we look it up and enjoy the news in full. Sometimes (but, of course, that is not often, oh dear, no!) we let the news in brief suffice. Of course, it goes without saying, we are busy, not idle! Anyway, we believe that pithy pars appeal to the many, and although we do not for a moment claim for our poor phrases the title of pithy pars, we sometimes think short notes, even if dull, are better than long ones of the same character.

We always enjoy Primrose McConnell wherever we meet with him. Unfortunately it is never the flesh, but only in the Press. He knows, as few agricultural writers know, the whole of the business, practically and theoretically, and that is a fine thing. His name tells of his parentage, and therefore we are not surprised to find he begins his notes for a Midland paper by comments on the late outbreak of foot-and-mouth disease in Edinburgh. It is only old farmers who really know, by perhaps sad experience, what a fearful thing it is for the country generally, should foot-and-mouth disease get a firm hold on

our flocks and herds. Present-day farmers may read about the losses of the past, but really to appreciate those losses we need more than the printed account.

It appears that this outbreak in Edinburgh began among dairy cows, and we are glad to find the authorities acted with commendable promptitude. There was but one thing to do, and they did it; no peddling about with curative agents. One agent was used, and that the most effectual—the knife. In one dairy 110 animals were slaughtered, and in another 88. It is fair to suppose they were not all affected, but all were open to doubt, and the case was too urgent to admit of rose-water remedies.

We should like to think the plague is stayed. At any rate, the authorities will not relax their vigilance for some time, and we may consider we have got off cheaply, and very cheaply, if we have only lost something under 200 head.

Now, as to the origin of the disease, that seems open to doubt. Not Mr. McConnell seems to have no hesitation in condemning the imported hay and straw. He says he has often been offered hay and foreign "chop" at tempting prices, but so far he has resisted the attractive commodity. He dare not introduce it among his cattle: the risk was too great. He suggests the question, and also gives the answer, as to why we so seldom hear of outbreaks of foot-and-mouth disease that may be traced to this source. It is simply because such fodder is almost entirely consumed in towns by horses, and supposing the manure is infected, it is carted on to arable fields where cattle do not come, and so the danger passes off. He further adds that where this fodder is fed to cattle, it is only a question of time to have an outbreak either of foot-and-mouth, pleuro-pneumonia, or rinderpest. He speaks of a case where an outbreak occurred through some tainted straw that was used to envelope medicine bottles! Rather an anomaly, was it not?

Mr. McConnell again raises the old, old question of how to deal with liquid manure. We are glad he has something to say on the subject. No one likes dealing with it. Men will not, and masters cannot. No system of tanks and pumps is efficient. This way has been tried over and over again, and failure is writ large over the attempt. The natural liquid from the manure might be dealt with, for with proper bedding and common attention it could all be soaked up. Here peat-moss litter comes in so handy; it is so absolutely dry that it can hardly be saturated to repletion. Then, of course, here comes in one of the many grand points about covered yards. The so-called liquid manure is often little more than discoloured rain water—water that should have been diverted by spoutings into the cistern, where it would be a valuable asset, but sadly out of place in yards where cattle want dry, comfortable beds. When landlords and farmers see more eye to eye, and in those halcyon days that are coming when farm buildings will be perfect, we shall hear no more of that tiresome bye-product called liquid manure.

In to-day's paper, among the farm notes, we read this: "Farmers are afraid the grub or wireworm is about to do the damage (to wheat) which has occurred now for so many years past, in spite of all the known precautions having been taken." Well, there are a good many other farmers who can endorse this statement. It is an enemy to the wheat crop, and one difficult to deal with, and not only wheat is attacked, but also turnips, rootlets, and potatoes. Every soil gives them harbourage—light, heavy, and medium alike. For the wheat plant we have always advocated a heavy rolling, and then a top-dressing to encourage the crop to grow out of danger. But what we want is some remedy or preventive measure, some plan by which the seed sown is made distasteful to the visitor, so that he should be entirely choked off and have to find pastures new.

Well, Professor Wrightson tells us that a friend has communicated to him the outcome of some little investigation on this matter. It may be that the remedy has been found at last. If so, like many other great discoveries, it was pure accident. Of two lots of barley sown at the same time, one lot had been put through no special process. It came up well, and then perished. The other lot of barley had been sweated in a kiln, was sown in the same fields, came up, and remained unmolested. Was the gas coke used in the kiln, and which contained a certain amount of sulphur, accountable for this? The farmer thought so; and therefore, like a wise man, he did a bit of experimenting. He fumigated all his seed-corn with sulphur, and for five years has not been troubled with wireworm, and better still, has seen no sign of smut. This looks like opening out a great field for new endeavour: two pests killed at once. Can it be that in process of time we shall have an improved variety of wireworm that can take up the sulphur-treated rootlets, and use them as a tonic? Who knows.

The shortage of the butter supply is agitating the minds of many. Prices are higher than have been known for a quarter of a century. Australian drought has much to answer for—12,500 tons less than usual from those pastoral colonies. We have got so to depend on "from abroad," and we have also so

acquired the butter-eating habit. We say this advisedly, for we live in an age of luxury, and expect the best of everything, and plenty of it too. We have learned how valuable a food is that purest of all pure fats, good butter; and yet with all this outcry the price of household butter is still less than we have known it. We have ourselves sold at 1s. 8d. and 1s. 9d. per pound of 16oz. and to-day good English butter can be bought at 1s. 4½d. per pound. That is by no means a famine price.

We have no doubt that before the summer is over we shall see butter at 6d. We have lived many summers, and had that experience, and we only wish our dairymaids could so effectually "cure" that 6d. butter as to make it available for the winter months. With plenty of ice to make it firm, so as to be workable that every drop of moisture could be extracted, and then employ cold storage, we think the thing might be done. But where is the cold storage to be found? We are not like the Canadians, who have depôts for cold storage. We might learn some excellent lessons from their management if we only would. We are very, very backward in picking up hints. The younger nations do forge ahead of old Mother England. It is a way children have, but we do not like to see ourselves behind in the race.

P.S.—As we go to press we hear there is a fresh outbreak of foot-and-mouth disease in Edinburgh, but no particulars are to hand.

Work on the Home Farm.

It has been a week of stormy winds which would have done much to dry the land had they not brought heavy rain with them. As it is, farm work is at a standstill, except the routine work, which is resorted to rather than to keep well-paid men in idleness. We have no corn to deliver to rails at present, nor potatoes; and we are sure that our road surveyors will be thankful we have not. They will not be pleased with us if we begin carting manure on the soft roads, which we may have to do to keep the horses exercised, as well as relieve the pressure of muck from the yards.

Manure carting has this winter been very intermittent, and the accumulations are large. It is time this manure was removed. As the days lengthen and the sun gains power, heat from accumulated manure below, and sun above, may be too much for young cattle, and cause attacks of "blackleg," a complaint we have had excellent cause to remember. Therefore, although the roads are bad, and we are making them worse, we must employ our horses and men in carting manure.

If we had been able to give the final cleaning to one piece of fallows we should have been inclined to spread the manure on the land for ploughing in, but you cannot clean land after it is manured, so we must be content to lead the muck into hill, in a convenient place for carting out again upon the land.

A Motor Plough in Morayshire.

The Morayshire champion ploughing match has for a long period been regarded as the most important in the county, and as it has always been open to all comers, the leading ploughmen over a large area have attended. The match was held on Saturday, February 21, on a field on the farm of Strathmayne, about a mile and a half from Elgin, and as the weather was ideal for the season of the year, there was an unusually large attendance, brakes and waggonettes plying to and from Elgin during the day. Farmers and farm servants came from a large area, the great attraction being the motor plough of Messrs. Marshall and Sons, Gainsborough. This exhibition has been promised for years, but on Saturday it was realised; but it may be mentioned that no one connected with the Ploughing Association was to blame, as a motor plough was on each occasion promised, but never turned up. On Saturday the energetic and popular secretary, Mr. Robert Forbes, Kinloss, was in luck, for the motor engine and the plough not only did their allotted task, but the former, after helping the plough to turn over its "lonely furrows," made a journey of about a mile to Strathmayne, and took its part in driving the threshing mill. The interest of the day was mainly centred in the work of the "motor plough." There was some difference of opinion as to the "plough" and the way that it did its work, but there was none as to the admirable efficiency of the motor. The motor engine went steadily along, was easily steered, and was under perfect command of the driver. It was acknowledged on all hands that "Marshall's" motor, like motor cars, has "come to stay." The little engine, after doing its work on the field, started off to Strathmayne, where it engaged in driving a "Marshall" threshing mill. It drove the mill with the greatest ease, and did twelve quarters in the course of an hour. The ploughing by the champions (who numbered twenty-five in all) was regarded as the finest that has ever been seen in the North. The land was equal and uniform, and the judges declared that in every case it was well set up, nicely packed, and that the order of merit was merely a matter of degree. They said there was not a bad ploughed furrow in the field.—("N. B. Agriculturist.")

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Journal of Horticulture.

THURSDAY, MARCH 12, 1908.

Mistakes in Planting.

HERE is an old saying, that he who never made a mistake never made a discovery, and as there is, probably, as much truth in it as there is in most old sayings, we are inclined to think, in relation to our text, that surely here of all things the most discoveries are made. This, and more also; for there seems to be a sort of infatuation luring planters to dump down things ubiquitously without profiting by the mistakes of others. In no instance of the multitudinous phases of planting is this more in evidence than in that pertaining to our noble coniferous trees, and this in relation to space, soil, and local climatic conditions. We are least concerned with those instances where these youthful scions of surely the noblest races of the great kingdom of silent life are temporarily used as ornamental subjects. Nevertheless, the bulk of even this planting, about the numerous, pretty, suburban villa residences, is in a measure a mistake by reason of a restricted area which does not allow of a final transplanting to more congenial surroundings, such as obtains in pleasure grounds and demesnes.

That this is a mistake most will admit on seeing members of the Abies, or Picea family, or may be a Wellingtonia, selected for its infantile charms to adorn the frontage of a small dwelling. Daily we see Wellingtonias which have for some years been thus degraded, and what pitiful objects they are! Such, indeed as would tempt any tree-lover to long for the establishment of a society for the prevention of cruelty to vegetables. In one particular instance, and this a Wellingtonia, under daily observation, we asked a tree-loving friend what he thought of it. His reply was: "The planter ought to have six months' hard."

Imagine, we say, those specimens standing in the Mammoth Grove, California, towering aloft to well on 500 feet, and proportionately built. Look on that picture, and look on this—a poor

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No. 1416.—Vol. LVI. THIRD SERIES.

mutilated, deformed monstrosity, annually snubbed in its instinctive desire to rise heavenwards above that window-sill to which height it is confined! The pity of it. Yes! There should be a society for the prevention of cruelty to vegetables, and its earliest efforts should be devoted to putting such pitiful objects mercifully out of their misery.

There is less excuse for this barbarity by reason of a certain number of species which by their comparatively dwarf habit are eminently adapted to restricted areas and contingent height limits. These, too, are among the most graceful and beautiful of evergreens, and, surely, it is better to have a full-grown, handsome specimen of, say, *Biota orientalis aurea*, or *Retinospora plumosa* (green or gold), 4ft or 5ft high, than the crippled offspring of a giant dwarfed to the same dimensions. The one is an object of beauty, the other, if it does not excite pity, can hardly fail to breed contempt. One may, in fact, select from among the wealth of coniferous or evergreen trees now available, species or varieties which as full grown specimens will, practically, suit any position so far as room requirements are concerned, and as these positions on the smaller scale generally allow of that good soil which tree-life loveth, there is no excuse for such mistakes, small as they may be compared with a more important phase of planting.

Soil and situation play a prominent part in planting where the object of the planter is handsome and stately specimens. As a rule this important matter is not considered, and genera and species are selected indiscriminately to the end of the most serious mistakes of all being made. Yet it is just as easy to make suitable selection, and go right *ab initio*. In the two great families, *Pinus*, the Pines, and *Picea*, the Silver Firs, we have wholly opposing traits of character, inasmuch as the Pines love a dry, gravelly sub-soil, or rather, the surface soil superimposed on such, as they are, naturally, comparatively shallow rooters; while the Silver Firs, under all its forms, demand the reverse. To plant Pines and Silver Firs indiscriminately is a big mistake—a mistake which may be admitted, but only so far as to lead to the inference that it is the plant which is to blame, and not the planter. As an instance of this we have seen an inland demeane where the Silver Firs, of various species, particularly *P. nobilis*, thrive amazingly, and where the Pines after a few years of silent suffering beget the apologetic, but obviously needless, remark "Pines do not do here." And they do not; but still, somehow, the planting goes on with, presumably, the vague idea that persistent hand-grips with Nature will eventually tire her into a consenting toleration of conditions of which, as yet, she will have none of.

If it were necessary, or expedient, to turn a private place into a public arboretum, or botanic garden, for comparative experiment, one could better understand the desire for a representation of those genera which show a distinct partiality, or even demand, for conditions which may be absent; but, in our case, surely it is far better to plant such things as one may reasonably expect to develop into perfect specimens of their kind, than others which but a little reflection can hardly fail to show, must eventually become the silent and suffering witnesses of a mistake.

Mixed shrubby planting is, of course, the present-day planter's ideal, and the more it is mixed the nearer is his ideal attained. The inference may be wrong, but it is drawn from examples ubiquitously displayed, and "what can we reason but from what we know." We do not say definitely this is a mistake, so much depends on the angle of vision from which the object is viewed; but we do now and again find exceptions to this rule in which bold grouping of species, instead of mixing, is in evidence; or, may be, indeed, the planter has even dared to confine himself to one kind alone, such as *Pinus austriaca*, and, somehow, such examples seldom or never fail to please. Simple as it is, it is coming very near to Nature's ways in her happiest moods, and one feels after all that she is right, if unable to admit that we are wrong.

As a tree-lover one loves to dwell on the descriptive notes gleaned from among wilder and grander scenes, such as those vast forests of Deodars, the Hindoo Devedara, or Tree of God, which clothe the base and shoulders of the mighty Himalayas for miles and miles beyond the dim and distant horizon, or the Hemlock Spruce extending from Carolina to the borders of Hudson's Bay, and from the Atlantic to the Pacific Ocean. Are such superb natural schemes too vast for our comprehension? Too great to give the key-note to our petty plans? Perhaps not, for somehow one has faith in Nature after all, that faith which stands on a pedestal above and beyond argument.—K., Dublin.

This text might reasonably serve for extended comments. Why is it that horticulture languishes in some of the larger commercial centres of the North? At all events it appears to be in a languishing condition. If one may take the want of success at horticultural Flower Shows, shows as a criterion of the measure of public interest in flowers and the general produce of the garden, that measure is unsatisfactory, and is even a diminishing quantity. We know that great shows were once

held at Manchester, in the botanical garden at Old Trafford. Now, with all the advertising of the Press and other agencies, and by quite as many inducements as formerly, the shows there are by no means so splendid or successful as in former years. Now the cry of financial distress, and of declining popularity comes from Liverpool, where a magnificent spring exhibition was wont to be held. Thirdly, Birmingham has presented the very best in flower shows during the last two or three years, yet the promoters have met with only partial success. What is the reason, or what are the reasons? Does it mean that the outward flow of the cheaper houses and working people's dwellings in these larger cities has driven away the wealthier members of society, who had small estates and good gardens, with gardeners to keep and dress the same? We think this is largely the reason. This view is borne out, too, by the fact that other societies are springing up on the fringes of these large cities. It is a state of things begotten of the altered conditions of the present day.

It is well to bear in mind that lawns require cultural assistance as well as any other garden crop. It is, I fear, a much too common occurrence, in the stress and hurry of spring work, to

overlook the top-dressing due to an impoverished lawn. We do not always realise that the constant mowing and sweeping of tidily-kept sward, cannot fail to deprive it of much natural nourishment, which should be periodically restored in a suitable form during early spring and autumn. On lawns, cricket grounds, and tennis courts, which have, for any reason, been comparatively neglected since autumn, no time should be lost before levelling up any inequalities in the turf, and carefully extracting all Plantains and other coarse weeds or grasses. After rain the ground should be well and repeatedly rolled; first backwards and forwards from opposite sides, afterwards varying the process at right angles to the former course. In this way any parts of the surface soil which may have been loosened by frosts or worms will be effectively solidified, and the grass roots pressed firmly into position. A good top-dressing, consisting of sifted loam with a liberal addition of wood ashes and soot, may be spread over the plot, filling up all holes and forming an appreciable layer upon the entire area. Stable manure mixed with fine soil also makes an admirable surfacing, but it must be thoroughly fermented and rotted before application to make sure that it contains no seeds of weeds.

Artificial manures are very useful on turf of all kinds, especially where well-decayed stable dung is not easily procurable. Superphosphate of lime and kainit may with advantage be mixed with the spring dressing at the rate of from one to two hundredweight to the acre. Where it is thought proper to encourage clover, a well-known authority recommends a dressing of from 5lb to 8lb of basic slag, and 2lb to 3lb of kainit per forty square yards, to be applied in November. Too much clover, however, is not desirable for ground upon which games are played, as it is somewhat slippery, especially in damp weather. The quickly acting stimulant, nitrate of soda, will have an excellent effect if well crushed and applied at the ratio of about a hundredweight to the acre in April. It is best given in two dressings, during showery weather if possible, with an interval of about a fortnight between each dressing. To facilitate an even distribution, the nitrate may be mixed with sifted soil. A word of caution may, however, be in season. It is, undoubtedly, a very unwise practice to apply nitrogenous salts to a starved lawn, if an adequate proportion of the other necessary plant foods are absent. Nitrate of soda is not the all-sufficing manure it is sometimes supposed to be; and when administered without first enriching the soil with the requisite basis of potash and phosphates, its exhaustive action is bound to have deleterious effects upon the vitality of the finer grasses. The unduly forced luxuriance, although gratifying to the eye, is not healthy growth, and is only bought at the expense of the enfeebled constitution of the turf.—J. E. S.

Publication Committee "Quarterly Journal of Forestry."

The publication committee of the "Quarterly Journal of Forestry" is as follows:—Arboriculture: H. J. Elwes, F.R.S., Colesborne, Cheltenham; A. Henry, M.A., F.L.S., Reader in Forestry, University of Cambridge. Entomology: A. T. Gillanders, F.E.S., Park Cottage, Alnwick. Home Forestry: Sir Hugh Beevor, Bart., 17, Wimpole Street, Cavendish Square, W.; W. B. Havelock, The Nurseries, Brocklesby, Lincolnshire; J. P. Robertson, Edensor, Bakewell, Derbyshire. Forest Education: J. Smith Hill, B.A., Principal, Agricultural College, Aspatria, Cumberland. Irish Forestry: A. C. Forbes, F.H.A.S., Department of Agriculture, Dublin; A. E. Moeran, Palmerston House, Portumna, Co. Galway. Mycology: M. C. Potter, M.A., Professor of Botany, Armstrong College, Newcastle. Advertisements and Exchange Column for Plants and Seeds: E. Davidson, assistant secretary, R.E.A.S., Haydon Bridge, Northumberland. Foreign and Colonial Forestry and Chief Editor: W. R. Fisher, M.A., 6, Linton Road, Oxford.

***Dendrobium thyrsiflorum.***

We do not hear so much of the Highbury orchid collection in these days, but it is still maintained. Our present figure of a noble specimen *Dendrobium*, however, was photographed at Highbury. This special plant was grown by Mr. H. A. Burberry when he occupied the position of orchid cultivator to Mr. Chamberlain. The plant was in a 14in pot, and carried seventy spikes of bloom, and the spikes averaged fifty-five flowers apiece. The plant was kept in the *Dendrobium* house during summer when making its growth. At all other times it occupied a light position in an intermediate house, where the

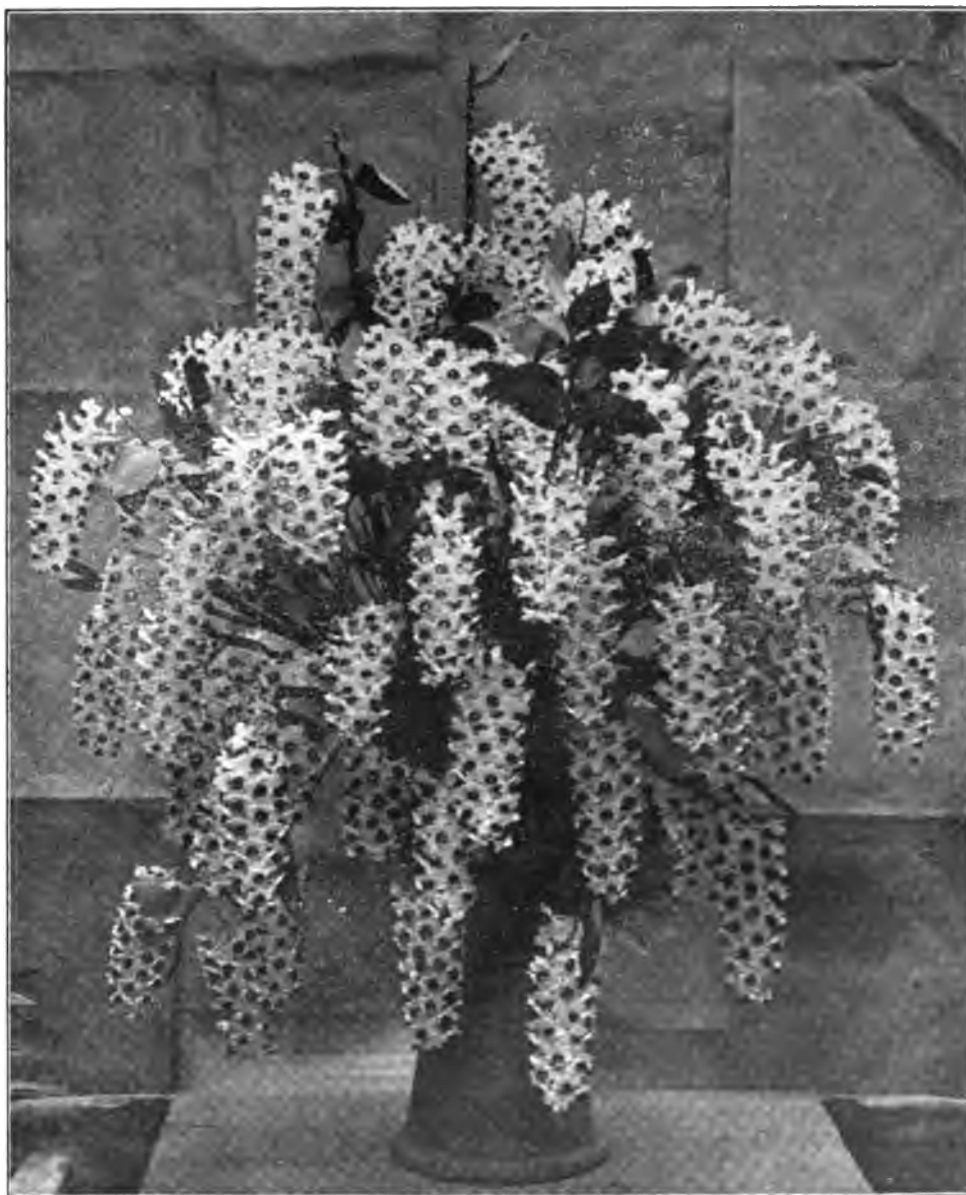
of course, quite dry. Repot once in two or three years, in good peat and sphagnum, in well-drained pots, and let it be done soon after flowering.

Cultural Notes.

For several months onwards, the list of temperatures given below should be maintained as near as it is possible. Fluctuations ought always to be avoided, but with solar heat the figures quoted for during the day may rise a few degrees with perfect safety. However, the maximum must be reached at midday, and gradually fall till the morning, when the lowest point is recorded:—

	Day.	Night.	Morning.
East Indian house ...	70-75 deg. Fahr.	65-70 deg. Fahr.	65 deg. Fahr.
Cattleya and Mexican house	65-70 deg. Fahr.	60-63 deg. Fahr.	60 deg. Fahr.
Intermediate house ...	60-63 deg. Fahr.	60 deg. Fahr.	58 deg. Fahr.
Cool or <i>Odontoglossum</i> „	55-60 deg. Fahr.	55 deg. Fahr.	50 deg. Fahr.

The blinds will now be needed for a few hours on bright days, which has a tendency directly they are let down to somewhat



A Specimen *Dendrobium thyrsiflorum*.

temperature may fall as low as 50deg and rise as high as 65deg. During the growing season afford a good supply of water, but the compost must not be continually saturated. During the dull months the compost should be comparatively dry, but not,

lower the temperature. To prevent these sudden changes it is wise to close the ventilators prior to attending the blinds. A moist and genial atmosphere should prevail throughout the whole range, but no damping down can be done till the day

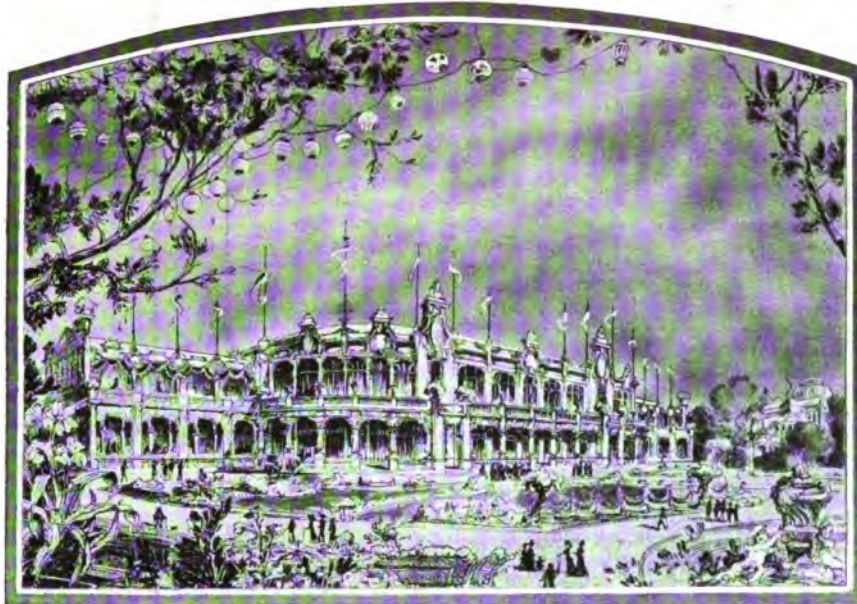
temperatures are registered; and small seedlings and Odontoglossums will benefit by a slight spray overhead whenever the weather is suitable. For this purpose the Abol syringe (as advertised in the *Journal*) has proved an ideal instrument, because the finest dew is equally distributed over all the plants.

Extra care is required with the fires at this season, when we occasionally experience rather cold nights followed by warm sunny days; so they should not be started until it is ascertained whether the day is likely to be hot or otherwise; but the stoker must be ready for the evening, when the sun goes down, to keep the temperatures from going to the other extreme.

Vandas.

For diversity of colour no genus can equal this one. Excepting red, every other colour is represented, more or less, in one of the species. The most popular is *V. cœrulea*, of which we had a note on January 30. Then we have the stately *V. suavis* and tricolor, with their several varieties, while the smaller growing ones embrace *V. Watsoni*, *Amesiana*, and *Kimballiana*, all of which are suitable for basket cultivation. Thus, where space is limited they thrive well if suspended 18in or 2ft from the roof glass.

Now is considered the proper time to re-surface this section with equal parts of peat and living sphagnum; but where specimens have lost their bottom leaves, and have become what



The "Garden Club," Franco-British Exhibition.

is generally termed leggy, a thorough overhauling is a necessity. First of all watch for new roots to appear up the bare part of the stem. Should there be no sign of them, tie some sphagnum round, which, if kept moist, will encourage the formation of roots. When they are visible, cut off the top portion about 6in below the leaves, and repot in the mixture already referred to. Use plenty of drainage, and a few nodules of charcoal as the operation proceeds. Afterwards shade them from strong sunshine till re-established, and never permit the *Vandas*, or their allies, including *Aërides*, *Saccolabiums*, and *Angræcums* to get dry at the base. It will be noticed that roots invariably push out from almost any part of the stem. These should be trained into the compost, which not only benefits the plant, but preserves them from the ravages of cockroaches and other insect pests.—T. ANSTISS.

Bigeneric Hybrid Orchid.

At the Scientific Committee of the Royal Horticultural Society held on March 3, Mr. R. A. Rolfe, A.L.S., drew attention to the bi-generic orchid *Epi-diacrium Colmani* shown by Sir Jeremiah Colman, Bt., and raised between *Diacrium bicornutum* ♀ and *Epidendrum ciliare* ♂, and remarked that this new and interesting hybrid approached closely in habit, inflorescence, and form of flower to the pollen parent. He also commented upon the question of the nomenclature of bi- and poly-generic hybrids, saying that he considered it best to compound the name of the hybrid from the names of the parent species, and to avoid conventional names, unless they were so formed, as long as it is possible to do so.

Notices of Books.

THE HORTICULTURAL NOTE BOOK, by J. C. Newsham, F.L.S.; second edition, revised. London: Crosby, Lockwood and Son, 7, Stationers' Hall Court, Ludgate Hill. Price 4s. 6d.

In our review of the first edition of this book, in January, 1906, we described this as a most distinct work. No book other than Loudon's large "Encyclopædia of Gardening," contains so much statistical and tabular data on hortulan affairs, and it is with the greatest pleasure, therefore, that we received the second edition a few weeks ago. It is just such a book or compilation as one takes a keen interest in, since one has the feeling that in improving it, one also better one's sources of readily available information. To horticultural lecturers, head gardeners, and indeed, gardeners of all degree, the Note Book must appeal. At first it was too refined, with its pliable leather covers and bevelled gilt edges; but a more generally serviceable edition is now before us.

Its new outward appearance, however, is the only new thing, and our former suggestions for the inclusion of lists of hardy ferns, lists of carpet-bedding and sub-tropical plants, rainfall maps, and some observations thereon, among other things, have still to be considered.

We would again remind our readers that the work is sectioned as follows: 1, weights and measures; 2, land measuring and mensuration; 3, garden formation; 4, horticultural buildings; 5, hedges, fences, and gates; 6, geological formation and soils; 7, chemistry of the garden and manures; 8, propagation and seed memoranda; 9, fruit culture; 10, flower culture; 11, vegetable culture; 12, trees and shrubs; 13, insecticides and fungicides; 14, garden meteorology; 15, garden recipes.

SEASIDE PLANTING OF TREES AND SHRUBS, by Alfred Gaut; illustrated by photographs by Frank Sutcliffe. London: "Country Life," Ltd., Tavistock Street, W.C.

This book is "an endeavour to show how the evils may be mitigated which are wrought upon vegetation of all kinds, not only by the north and east winds along the east coast, but also upon every part of the shores of the British Isles, which are exposed to strong gales and storms."

The work, we gather, is a published statement of opinions and of practical observation bearing on seaside planting. The coast of Yorkshire has been the immediate part that has been under observation. Mr. Gaut had found, in his research work among the hardy cultivated fruits of Yorkshire, the great difficulties experienced by growers in the cultivation of fruits and farm and garden crops, owing to the cutting easterly winds and strong gales from off the sea at all seasons of the year. He compares the beauty of the many ravines with the stony bareness of the exposed portions of the coast, and points to the advantages of shelter to man, horses, cattle, dwellings and homesteads, and also as resting and nesting places for birds and game. Nor is the seriousness of marine erosion overlooked. On the Yorkshire coast it is very extensive, and landslips are of frequent occurrence. The establishment of a "first line of exposure" is the great difficulty. By means of diagrams Mr. Gaut illustrates the possibility of so planting. Immediate forefront protection is secured by either a stone dyke, a fence of spar or brushwood, or other shelter. The trees behind are thickly planted, and are of the hardiest kinds, so that a dense mass of growth of branches and foliage is formed to catch and break up the first force of the gales. These shelter belts upon the Belvedere estate form almost impenetrable thickets. Narrow belts are useless as a means of shelter.

The building of stone dykes and the making of spar and other kinds of fences are then considered, and the reader is greatly assisted by the excellent photographs. A chapter follows upon the preparation of the soil and the actual work of planting. The author recommends deferring the planting until late winter or early spring (i.e., the present time of the year), especially in the very exposed places. Evergreens, indeed, should not be transplanted until late in spring, and even then the month of April is quite early enough. Lists of suitable trees and shrubs conclude this very useful book.

NOTES

NOTICES

Royal Horticultural Society.

The next meeting will be held on Tuesday, March 17, and a lecture will be given at three o'clock by Mr. George Gordon, V.M.H., on "Beautiful Flowering Trees and Shrubs."

Horticultural Advisers.

The number of superannuated gardeners, or other horticulturists, who advertise themselves as horticultural advisers, steadily increases. We observe that Mr. J. Crooke, lately head gardener at Forde Abbey, has joined the ranks, and there are several others who undertake advisory work, but who do not solicit engagements by advertisement. Mr. S. T. Wright at Wisley, of course, "advises" on behalf of the Royal Horticultural Society; while Mr. Geo. Abbey, St. Albans, Mr. R. Lewis Castle, Harlesden, and Mr. Stephen Castle, Finchley, as a few near London, are actively engaged as horticultural advisers.

February Weather at Belvoir Castle.

The prevailing direction of the wind was S.W.; total thirteen days. The total rainfall was 1.49in; this fell on seventeen days, and is 0.31in below the average for the month; the greatest daily fall was 0.33in on the 23th. Barometer (corrected and reduced); highest reading 30.707in on the 6th at 9 a.m.; lowest reading 29.093in on the 28th at 9 p.m.; mean of 9 a.m. and 9 p.m. readings 30.047in. Thermometers: highest in the shade 52deg on the 6th; lowest on the screen 24deg on the 2nd; mean of daily maxima 46.41deg; mean of daily minima 34.44deg; mean temperature of the month 40.42deg, which is 3.29deg above the average; lowest on the grass 21deg on the 5th and 13th; highest in sun 99deg on the 28th; mean temperature of the earth at 3ft 40deg, which is 0.35deg above the average. Total sunshine sixty-four hours forty minutes, which is fifteen hours fifty minutes below the average; there were four sunless days.—W. H. DIVERS.

The Garden Club of the Franco-British Exhibition.

The Garden Club now being formed in connection with the Franco-British Exhibition is under the direction of a strong committee, presided over by the Earl of Jersey, and including, among others, Viscount Selby, Lord Alverstone, Lord Blyth, Lord Desborough, and Lord Strathecona. It will possess one of the most magnificent and commodious club houses ever constructed for a summer club in any part of the world, as may be gathered from the fact that the building has a frontage of 300ft, and a depth of over 130ft. Ladies are qualified for membership, and a special reception room and drawing-room, together with a suite of boudoirs, will be set apart for them in the club house, where the men will also be provided with a smoke room and several dressing rooms. The façade of the great dining hall is composed entirely of large glazed panels, and its doors and windows open directly upon gardens, in the centre of which is an ornamental sunken band-stand. There is likewise a spacious banqueting hall, nearly 100ft long, and somewhat smaller rooms in which private dinner parties may be given by members, while on the lower floor and on the terrace above are numerous partly-closed spaces, which will be found suitable for small dinners and luncheons, in addition to a score of private dining rooms. The catering of the club has been placed in the hands of Messrs. Lyons and Co., whose charges will be on the same moderate scale as at the Trocadero Restaurant. The executive is to be congratulated on having made such a favourable arrangement, as it has been the custom in all previous exhibitions to add at least 25 per cent. to the cost of everything in the way of refreshments consumed in the grounds. It may be mentioned here that the prices at the restaurants and buffets throughout the exhibition will be the same as those which usually obtain outside it. The subscription to the club, which includes entrance to the exhibition, is three guineas for gentlemen, and two guineas for ladies, but for those living over twenty-five miles from Shepherd's Bush the subscriptions are respectively two guineas and one guinea and a half.

Mr. James Whytock.

A week or two ago we announced that Mr. James Whytock, head gardener to the Duke of Buccleuch, at Dalkeith Gardens, N.B., had been elected as president of the Scottish Horticultural Association, in succession to Mr. David W. Thomson, nurseryman. The members of this foremost and most robust of Scottish gardening societies believe in maintaining a firm hold over the affairs of the association, and they also like to do honour to those of their own ranks, who are, of course, mainly professional gardeners. Hence the selection of the distinguished supervisor of those famous gardens, over which have presided such men as Charles McIntosh, William Thomson, and Malcolm Dunn. Mr. Whytock has now been at Dalkeith since 1899, and after over nine years of trial he has not been found wanting. When our friend was appointed to his present situation the *Journal* remarked: "We have reason to believe that other capable and worthy men had the strongest of recommendations from personages of almost the highest rank in the kingdom, but the Duke, after summoning a selected number

**Mr. James Whytock,**

THE NEWLY ELECTED PRESIDENT SCOTTISH HORTICULTURAL ASSOCIATION

of candidates to Dalkeith, decided that the combination of qualifications possessed by Mr. Whytock peculiarly fitted him to the varied cultural duties and other requirements that are desired to be met by the head of the gardening establishment." So it has proved. Mr. Whytock had previously won credit and experience under the late William Thomson in the same gardens, so that he was not unacquainted with the responsibilities that awaited him. He is a Scotsman, and left Earl Fitzwilliam's beautiful seat at Coollartin, Wicklow, to go to Dalkeith. A summary of his presidential address appears on another page.

The Flora of New Zealand.

The Educational Department of the Government of New Zealand has made arrangements for the publication of a series of 250 quarto uncoloured illustrations of the native plants of that country. Mr. T. F. Cheeseman, curator of the Museum at Auckland, and author of the excellent *Manual of the New Zealand Flora*, which appeared in 1903, has been appointed editor. The plates will be prepared in this country under the supervision of Mr. W. Botting Hemsley, Miss M. Smith is undertaking the drawings, and Mr. J. N. Fitch their reproduction on stone.—("Kew Bulletin.")

Liverpool and G.R.B.I.

The Liverpool Auxiliary branch of the Gardeners' Benevolent Institution hold their annual smoking concert on Saturday next, in the Bear's Paw Hotel, Lord Street. A delightful programme is arranged, and it is hoped the attendance will excel that of previous years. Mr. R. G. Waterman, Woolton, is hon. secretary, who will gladly receive subscriptions or forward tickets.

A £1,200 Buttonhole.

At the last fortnightly exhibition of the North of England Orchid Society, held at Manchester, an orchid, grown by a Mr. Peeters, of Brussels, who carefully nursed and tended it, under the name of *Odonto. crispum* van Frans Maeserel, was sold for £1,200. Philanthropists may stand aghast at the thoughts of so much money being given for a single plant, but surely a specimen with such an aristocratic name is worth a little more than a bunch of Violets!—"Globe."

Compounds (Poisonous) for Horticultural and Agricultural Purposes.

It is satisfactory to find that the "Poisons and Pharmacy Bill" successfully passed its second reading in the House of Lords on Thursday last, and was referred to a Joint Committee of both Houses of Parliament. The horticultural trade is materially interested in this Bill, as by Clause 2 power is given for persons, other than chemists, such as nurserymen, seedsmen, and agricultural agents, to stock and sell (under provisions to be made by the Privy Council), weed killers, insecticides, sheep dips, &c. It will be remembered that the Traders in Poisonous Compounds for Trade Purposes Protection Society has, for years past, been working to this end, and it is due to the efforts of the society that this clause has been inserted in the Bill. All those interested in the sale of these compounds should assist the society in its effort to get Members of Parliament to support Clause 2 of the Bill, so that the same may become law this session.—G. H. RICHARDS (manufacturer of XL All).

Sudden Death of Mr. E. J. Castle.

We deeply regret to learn of the sudden death, on March 4, of Mr. E. J. Castle, aged 39 years. For the past year or two Mr. Castle has suffered more and more acutely from pulmonary tuberculosis, and not so long ago he told us that the exertion of rapid writing was even too much for him, and occasioned great distress in recovering his breath. He was trained as a gardener at Hillington House, Uxbridge, Middlesex; at Messrs. Cannell's nursery, and at other places, and was, we believe, in a small nursery of his own for a short while. Eventually he joined "The Gardener" upon the editorial staff with Mr. Walter P. Wright, but was obliged to relinquish that post, and for three or four years has assisted Mr. W. P. Wright in a secretarial capacity, and has further supported himself and his household by writing for the gardening newspapers, our own among them. He possessed a very considerable all-round knowledge of gardening, and was an able writer. To his bereaved widow we extend our deepest sympathy, and regret the loss of such a kind and genial man. He left no family.

The Kew Gardeners.

On the 5th inst., in the House of Commons, Mr. Summerbell, M.P., drew attention to the fact that ten gardeners were under notice to leave Kew at the end of the month. He said that these men were experiencing great difficulty in obtaining situations, and enquired whether it was intended to turn them off without employment in view of the fact that they have only been receiving a so-called subsistence allowance of 21s. per week. The representative of the President of the Board of Agriculture replied that the young gardeners at Kew are employed for a period of two years, and that those under notice will continue to be employed until they obtain situations elsewhere, provided that they continue to give satisfactory service, and that they use their best endeavours to obtain situations. The secretary of the Kew Employees' Union states that whereas—no doubt with a view to checking combination among the men, and the standard of efficiency required has actually been lowered with that aim—gardeners entering the Royal Gardens, Kew, are now informed that theirs is a limited engagement; this was not the case with the men under notice, and it is therefore wrong to discharge them.

New Fellows of the R.H.S.

At a general meeting of the Royal Horticultural Society, held on Tuesday, March 3, one hundred and thirteen new Fellows were elected, among them being Viscountess Encombe, Lady Alington, Lady Bingham, Lady Blake, Lady Cunningham, Lady Dobson, Lady Hastings, and Lady Wake, making a total of 305 elected since the beginning of the present year.

B.G.A. Meeting.

A meeting of London parks employees, under the aegis of the British Gardeners' Association, was held in London last Saturday afternoon. Mr. George Gordon, V.M.H., presided, and there were between forty and fifty present. It was agreed to arrange for another similar meeting a month hence. It is hoped that a parks employees' section or branch of the association will be formed.

Rosherville Gardens.

Time was when Rosherville Gardens, Gravesend, formed a resort for the fashionable Saturday afternoon excursionist from London. Like many other similar institutions, however, its easy means of access familiarised the spot to such a degree as to attract a large proportion of the working classes, and the famous pleasure resort has of late years been almost entirely given up to that particular class of patron. On Wednesday and Thursday, February 19 and 20, the contents of Rosherville Gardens were sold by auction at Gravesend.

Scottish Fruit Trade Association.

The annual general meeting of this association, representative of the retail traders of Glasgow and the West of Scotland, was held on March 3, in the City Hall, Glasgow. Mr. Sprout, Kilmarnock, presided over a large gathering. The report of the work of the committee during the year was submitted, narrating the amicable arrangement of various differences between the wholesale broker and the retailer, such as the adjustment of a scale of tares, the abolition of a charge for non-returnable empties, and a satisfactory system of dealing with weights and hampers of Strawberries, &c. The office-bearers were elected.

English Gardeners in America.

The American trade papers record the death of two English-born gardeners, W. W. Edgar and George Wainwright. Mr. Edgar was one of the best known florists in New England, and died at Waverley, Mass., aged sixty-four years. He was born in Cheshire, England, and went to the United States in 1868. Mr. Wainwright was a nurseryman and florist of Trenton, N.J., and came of an old Yorkshire family. Henry, a younger brother, was mayor of Doncaster for several successive terms, and when he died, as alderman, Doncaster suspended all business for his funeral. An uncle, John Wainwright, was quite an historian, having written several histories of the Yorkshire Wapentakes, and a brochure on "The Landing of Julius Caesar in England." George Wainwright was eighty-two years old on February 4 last.

The late Mr. J. W. Bell of Rossie.

The late owner of the well-known Scottish garden of Rossie, Forgandenny, passed away on February 29, aged fifty-seven years. Mr. Bell was a true lover of flowers, enthusiastic over his garden and everything pertaining to gardening. Since the late gentleman and his brothers became proprietors of Rossie, about twenty years ago, they had enjoyed to the fullest extent the pastime of gardening by erecting over 300ft run of glass, which is admitted to be amongst the finest in Perthshire. Mr. John W. Bell was a member of the Royal Caledonian Horticultural Society, and at the Scottish Horticultural Society's shows has been a competitor (through his gardener, Mr. David Nicoll) for the past seventeen years, and has taken many of the principal prizes. In his native town of Dundee he has been one of the principal supports of the Chrysanthemum Society since its advent. Of a very kind and charitable disposition, many will regret the loss of a sincere friend. He was a Justice of Peace for the county, and for the city of Dundee, but he did not take any other notable part in public matters. His leisure was spent in his garden. The writer has heard him say he did not think he could enjoy his lunch or dinner without flowers being on his table.

Appointment.

Mr. M. R. Beaumont, formerly head gardener at Cotness, as gardener to J. H. Tullerston, Esq., Noblethorpe Hall, Barnsley, in succession to Mr. Guise.

A Pyramid of Flowers.

Last summer the Michaelmas Daisies with us around London flowered later than usual, so that Aster Tradescanti, which is the one figured in the next column, was still in good form in November. The flowers are starry and white, numerous borne.

Arbor Day at Eynsford.

Mr. E. D. Till has again arranged an elaborate programme for the Eynsford Arbor Day, March 14. The village band takes its part, also the school children, who will sing a chorus song. There will be a short service and address in the Parish Church, and after the tree-planting, high tea will be served in the Drill Hall, when speeches by Sir John Cockburn and Mr. Charles Dawson will be delivered.

Journal of the British Gardeners' Association.

The last of the quarterly issues of this publication has reached us. After this, the "Journal" will be continued as a monthly. Among the features of this present number is an open letter to the horticultural trade, also Kew gardeners and their authorities, the gardener's discount, gardeners and the B.G.A., together with letters of opinion and suggestion. Reports of the monthly meetings conclude the issue, which costs 3d. net, and may be obtained from the secretary at Talbot Villa, Isleworth.

Natal Botanic Gardens

According to the "Kew Bulletin," the Natal Government have found themselves obliged to reduce the expenditure upon the Natal Botanic Gardens and the Herbarium. The grant to the herbarium has been taken away entirely, whilst the grant to the gardens has been reduced from £350 to £150. This action has necessitated the discharge of two of the assistants and a considerable reduction in the salaries of the director and his curators. It is difficult to see how the important work of the department can be carried on effectively under these straitened circumstances.

Electricity and Plant Growth at Edinburgh.

At the March meeting of the Scottish Horticultural Association Mr. David King, nurseryman, Murrayfield, Edinburgh, had a most interesting exhibit. Having had electric light put into one of his houses for night work in busy times, he had four Lilac plants (imported plants last autumn) therein, and during the night two of them were shaded from the electric light, and the other two exposed to it. The result was that the two plants exposed to the light were covered with snowy white blooms, and the two which had been shaded at nights had only green buds. Mr. King also showed four Indian Azaleas which had been treated in the same way, with similar results. The members were deeply interested in this exhibit, and Mr. King was specially thanked for having brought the matter to their notice.

Mr. Walter E. Collinge.

In the preface to the fifth "Report on the Injurious Animals of the Midland Counties," Mr. Collinge says, "This will be the last I shall issue. As is well known, I have felt compelled to resign my position in the University of Birmingham owing to the lack of adequate financial support and remuneration. Since that date I have been offered and have accepted the Directorship of the Cooper Research Laboratory, Berkhamsted, where, with a full and capable staff, a wider field for work presents itself, but my services will be as freely at the command of Midland agriculturists and fruit-growers as in the past. Further reports will be of a more comprehensive nature, and will include accounts of injurious fungi, animal parasites, and animal diseases, in addition to the subjects dealt with in the present series of reports." In a separate communication Mr. Collinge says: "On and after March 5, my address will be the Cooper Research Laboratory, Berkhamsted, where I shall at all times be pleased to receive your enquiries relating to injurious insects, or any animals attacking crops; plant diseases due to fungi, or other causes, and animal parasites and diseases. The resources of a fully equipped laboratory and a capable staff are at your service, free of any charge."

**Pruning Roses.**

This work may be commenced in the South and West, but in the North it had better be deferred for ten days or a fortnight. Some of the buds on the ends of the shoots have already burst into growth, but the cutting off of these will not harm the trees. Whenever possible, use a sharp knife in pruning; secateurs are liable to damage the bark. The former takes longer, but it is time well spent.

The amount of pruning necessarily varies according to the section to which the Roses belong, and whether strong or weak in growth. A good general rule to follow is that the more vigorous the variety the less pruning is necessary. For instance, the well-known hybrid tea Liberty is only a moderate grower, and is better when hard pruned, last season's growths being cut back to within about two inches of the old wood. On the other hand, we have Caroline Testout, a vigorous growing hybrid tea, the shoots of which may be left a foot to 18in in length.

**A Pyramid of Flowers (Michaelmas Daisies).**

The purpose for which the blooms are grown has also to be borne in mind. Those for garden decoration need not be pruned as much as when grown to obtain exhibition flowers. A start can also be made with the pruning of the hybrid perpetuals, following with the hybrid teas, and Chinas, concluding with the newly-planted ones.

Previous to the pruning proper, all weak and useless growths should be removed. A good system to adopt with a few of the vigorous and free-blooming varieties is to bend down the strong vigorous shoots their full length. By this method an enormous quantity of flowers is obtained. The present work with Roses treated in this way consists in cutting out the shoots pegged down last year, and bending down the growths made last summer. Provided the climbing and rambling Roses were thinned last season after flowering they will require no pruning now, beyond cutting off the ends of unripened shoots and any pieces damaged by frosts.—K. O.

The planting of all those Roses left over from autumn and early winter should be accomplished without delay. When making new beds it is often necessary to defer the planting of the Rose trees till the spring, more especially if the ground is heavy. Standard Roses planted in autumn may now be tied permanently to the stakes. Overhaul the stakes of all standards, replacing with new ones any which have rotted at the base.

Hardy Plant Notes.

The Burnets (*Poteriums* or *Sanguisorbas*).

While there are about thirty recognised species of *Poterium* of Linnæus, a genus in which is included *Poteridium* and *Sanguisorba*, there are few of these in actual cultivation, and of these, again, but fewer are worthy of notice for garden purposes. The name of the genus is derived from *potion*, a drinking cup, the old Greek name, which was used by Dioscorides, the foliage of the plant having then been used in preparing a drink for medicinal purposes.

It cannot be said that the Burnets are likely to occupy a high place in the estimation of the gardener; yet a few will be found valuable by giving interest to a border, and the foliage of some species is pretty enough to commend these to the cultivators who like the graces of foliage as well as those of the flowers.

Our own common Salad Burnet, *P. sanguisorba*, is admired by many for its pretty, glaucous hue, and there are also some who appreciate its neat greenish or purplish flower-heads. It is a plant easily grown almost anywhere, but is not the best of the genus for the garden. I have, however, seen some of the forms with purplish flowers which were decidedly bright and attractive in their colouring. It grows most strongly in a rather moist soil, but is not particular in its requirements.

The Canadian Burnet, *Poterium canadense*, is more likely to



An early-flowering Dwarf Star-Wort.

find favour in the eyes of the greater number, and it is really a useful flower, either for the border or for cutting; while as a plant to naturalise it has many good points. It grows about 4ft high, and gives handsome tall-like spikes of flowers of a pleasing creamy-white. The neat foliage is attractive with its pinnate form and its pleasing glaucous hue. It flowers from July until about September. Any good soil will suit it, but in its native habitats it prefers a swampy one.

From the north-west of America we have *P. sitchense*, a species which may be used for the wild garden with more advantage than for the border. It grows about a couple of feet high, and gives good spikes of purplish flowers. It adds to its value as a wild garden plant that it prefers a rather moist position. It is a rather late bloomer, generally coming in about August and lasting for a couple of months or more.

Poterium tenuifolium is one of the Burnets but little met with, and it deserves a little more than this comparative neglect. It is a native of Eastern Asia, and is of graceful habit and pleasing foliage, and gives a profusion of spikes of nice white flowers, on stems from 2ft to 4ft in height. When better known it will be one of the most appreciated.

From a Continental source I have grown *P. filiforme* for three or four years, and I have found it quite satisfactory, although I imagine that it would flourish better with more moisture than I have hitherto been able to give it. It grows with me about 2ft high, and gives a profusion of graceful foliage, drooping neatly over, and a number of spikes of pinkish flowers in June. These flowers are not very brilliant, and I admire it more for its foliage than for its flowers. This is, I believe, a Himalayan species, and is perfectly hardy with me.

Our Great Burnet, *Poterium* or *Sanguisorba officinalis*, is so well known that one need not occupy space by saying much about its spikes of dark purple flowers or its foliage; while its cultivation presents no difficulty in almost any soil. In good soil its spikes rising some 3ft or 4ft high, look well amid the grass or lower growth of the wild garden, or in the rough places about the outskirts of a large garden where any such roughness is tolerated.

There are a few other hardy species of hardy Burnets to be met with at intervals, but those named are among the best and most readily obtainable. While a few are of high garden value, they have each and all some beauties of their own which commend them to some among the great army of plant lovers.—S. ARNOTT.

The Auricula.

The Auricula is quite hardy, but the richness of the colour of the flowers and the delicate nature of the leaves make it necessary, if the highest results are desired, to give it some light protection from heavy rains and cold winds. New varieties are raised from seed, which may be sown at any time, while named varieties are increased by off-sets. Seedlings often germinate months after the earliest ones; therefore save the pots.

An Early Star-Wort.

On the foregoing column there is figured a late-flowering member of the genus *Aster*, which includes the Star-worts and Michaelmas Daisies. Hereunder we illustrate a July flowerer—*Aster alpinus*. The flowers are bright purplish-blue, one to two inches across. The variety *speciosus* has larger flowers than the type, and *altaicus* is also very superior. These can be planted now.

Plants in Flower at Glasnevin.

In spite of heavy gales and many days of snow, sleet, and hail, the following plants have come into flower since the middle of February:—*Anemone Hepatica*, *Berberis aquifolium atrovirens* and *B. aquifolium nitens*, two neat forms of *Mahonia*; also *Cardamine digitata*, *Chionodoxa Luciliae alba*, *Corydalis cava*, *C. cheilanthifolia*, *C. Ledebouriana*, *Crocus Tommasinianus*, *C. Imperati albidus*, *C. lagenæflorus*, *C. versicolor*, &c. *Daphne Blagayana*, *D. Mezereum album*, *Galanthus Ikarie*, *Hyacinthus azureus*, *Hacquetia epipactis*, *Mandragora officinalis*, *Narcissus minor*, *N. pallidus præcox*, *Petasites lobata*, *Puschkinia scilloides (libanotica)*, *Polygala chamaebuxis*, *Populus grandidentata* (with ornamental catkins). Among *Primulas*—*Palinuri* just opening; and *P. denticulata alba*. *Prunus cerasifera*, *Ribes speciosum*, *Saxifraga ligulata*, *S. oppositifolia*, *S. opp. alba*, *S. Burseriana*, *S. Kotschyi*, *S. Petraschki*, and *S. Paulinae*, the former with beautiful large white flowers, and the latter with yellow flowers. Both are new forms, apparently, of the *Kabschia* section. Other *Saxifragas*, as *S. Boydi*, *S. Boydi Faldonside*, will shortly be in full flower in cold frames. *Tulipa Kaufmanniana* is flowering at the base of the Cactus House wall. Other plants in flower are *Omphalodes verna*, *Sisyrinchium grandiflorum*, and *Scopolia Carniolica*, the latter of botanical interest only.—J. W. BESANT.

Hardy Plants at Bolton, Lancs.

Mr. Saul, nurseryman, of Preston, addressed the Bolton Gardeners' Society on hardy plants. In preparing the land, especially in damp districts like ours, with clay subsoil, he said, thoroughly trench the ground and keep the best soil to the top, adding a good supply of stable manure as the trenching is done. The roots of perennials strike deeply, and will eventually find it. Soot, lime, charcoal, leaf mould, peat, mortar rubble, &c., are all useful applications. The borders must be well drained, so that the plants do not become waterlogged at any time. Raised borders were an advantage in the cultivation of some subjects, such as *Oenotheras speciosa* and *rosea*, *Gaillardias*, and *Pyrethrums*. Of course, this is in districts where the land is flat and heavy, with a clay subsoil. The lecturer strongly advised planting to be done in spring in this part of the country, and not until the soil was workable. Far better heel your plants in until the ground is suitable. When planting place some nice compost round them to give them a start. In a dry soil plant deeper, and pick out the most shady places for the moisture-loving plants, such as *Spiræas*, *Funkias*, *Gunnera scabra*, and others. For the Bolton district he recommended *Hollyhocks*, *Helianthus*, *Delphiniums*, *Lupins*, *Asters*, *Helenium*, *Rudbeckias*, *Eryngium planum*, *Chelone barbata*, *Liliums*, *Lobelia cardinalis*, *Liatris*, *Campanulas*, *Eulalias*, *Tritomas*, *Veronicas*, *Iberis*, *Pinks*, *Dianthus*, *Phloxes*, *Lychnis*, *Viscaria*, *Arabis*, *Alyssum*, and *Violas*. A mulching of manure is beneficial in summer, and water when necessary. A hearty vote of thanks was passed. G. C.

Rockwork and Rock Plants.—VI.

Grouping the Plants.

The practice of planting alpine plants on the mixed system means monotony and indifferent effect, and it follows that nothing is gained by having an extensive collection, for there is a sameness throughout, while the stronger or freer growing species take possession of considerable areas. In the alpine regions and on the mountain rocks, there is never seen a mixture of species as in the general mixture of them in the garden rockery. In Nature, one plant charms us by its massiveness, or the group may be inlaid by one or two other plants, but, as a rule, each bank or ledge and crevice of rock has a particular character in result of the individuality of the one or more allied plants that grow on it, and give the peculiar and special adornment. This implies natural arrangement of rock or alpine plants in the garden, as well as on the mountain slope or ledge of rock.

The grouping of the plants applies more particularly when duplicates of a certain species or variety are employed, it being best to make one or more groups of them rather than scatter them one by one all over the rockwork. This particularly applies to the dwarfier species, such as the *Drabas* and the dwarf *Gentianas*, also *Ameria alpina*, *Arenaria balcarica*, &c. Even the *Aubrietias*, though spreading far and wide, are seen to best advantage in masses. The grouping is also desirable for the slow growing and dwarfier kinds, as they are not thus liable to be overgrown and exterminated by rapid growing neighbours. Besides, good preparation of soil, drainage, and position is more likely to be secured for a group than is the case in planting in several places, while weeds and encroaching plants are readily seen and may be speedily removed. The groups, of course, should bear some relation to the proportions of rockwork, and though there may only be room for a few species, it is generally advisable to apportion as large an area for the lesser growing as for the larger and freer growing species, thereby giving the former a chance.

In this grouping and massing there is need of appropriateness to position avoiding formality, and acting on a free and Nature-like principle. This limits alike the coarser varieties to a clearly defined space. It also gives advantage to lesser species on equally legitimate limits. The natural grouping or massing system does not admit of the planting of *Clematises*, *Ivies*, *Periwinkles*, as sometimes done to hide the apparent bareness of the ground, for this means the over-running of the rock or alpine plants, and the very idea of a rock garden is speedily obliterated. Bare ground should be covered by true alpinines, which signifies some rock visible, and the carpeting implies a bloom that may be fairly seen, and its character impressed upon all who see it; whereas a little flower hidden among other plants escapes notice. Arrangement in natural groups thus secures distinct and definite aspects of vegetation, as each portion of the rockery has a character of its own. The observer sees new features in passing from one point to another. Indeed, the glory of rockwork is to secure effects of colour and brilliancy. The hard lines of the parterre are entirely absent, the groups of alpine flowers fading away in Nature's indefinite and charming way. If climbers and trailers are introduced, as is desirable in some cases as a background, or for breaking the view at particular points, positions should be selected where they may luxuriate without interfering with the other subjects, either by their top or root growths.—G. A.

Wood

In Its Botanical and Technical Aspects.

A lecture was delivered by Professor Wm. Somerville, M.A., D.Sc., Sibthorpean Professor of Rural Economy, University of Oxford, at the Royal Institution, on Thursday, February 20. The lecture was illustrated by a series of diagrams of wood sections, and tables showing comparative growths of different species of timber trees. The subject was handled in a clear, lucid, and masterly manner. He first described wood and its composition, the three chief elements therein being carbon, nitrogen, and oxygen. Factors affecting the activity of the cambium are nutriment, temperature, and pressure. Prof. Somerville gave numerous instances how pressure controls the action of cambium, and that it is always fed from above. Horticulturists often relieve the pressure on the bark of fruit trees by cutting longitudinal lines on what they term "hide-bound trees."

In temperate and cold zones the annual rings are simply and clearly defined. Not so in tropical climates, where a short rainfall will create a narrow ring, and again under a heavy rainfall a much wider ring, and even two rings in the same period of time will be formed. As to summer and autumn wood, the theories of Sachs and Hartig were examined. It is generally

admitted that narrow and close ringed wood is the most durable, and therefore of a superior quality. The position of a tree, whether in a sheltered forest or on an open exposed spot, acts as a very important factor upon the quality of the wood. Furthermore, one often hears that the poor land upon a certain well-known estate is to be planted up with timber trees, as the land is unfit to produce an agricultural crop. Poor land produces poor timber, and a timber tree is as susceptible to good soil and cultivation as is a crop of cereals or roots.

Of the lessons to be learned from girdling stems, examples were shown where only an increase of growth came from above, and where the lower section remained dormant. Often examples can be seen by our highways and gardens where a strong string or wire has encircled a tree, and caused a very perceptible enlargement of growth on the upper side.

TABLE SHOWING ANNUAL CROPS FROM ONE ACRE OF LAND, WITH CONSTITUENTS REMOVED FROM THE SOIL.

Crop.	lbs.	Carbon.	Nitrogen.	Oxygen.
Wheat	1530	34.0	14.0	9.0
Mangolds	6000	98.0	36.0	22.3
Beech	2300	10.0	1.3	4.0
Pine	2900	5.0	1.0	2.3

J. A. A.

Early German Gardening.

The German countries, in this new century, have attained an importance throughout the world which would much have surprised our good ancestors of a century ago. Both in thought and in work the Germans have shown themselves to be remarkably progressive, and the empire of the Kaiser stands out as a rival of the two great republics which largely influence our country. But we must remember that frequent intercourse with Britain, especially during the last two centuries, had a stimulating effect, if not an enlightening one, upon rather phlegmatic Germany.

Again, war is not an unmixer evil. Great are the calamities of war, yet it has some good results, and Germany, the central ground of many fierce conflicts, was a gainer in the breaking up of old customs and her intercourse with men of other nations. But in respect to horticulture, the unsettled state of Germany during the seventeenth and eighteenth centuries was a bar to its progress. No man could cultivate a garden with much heart when he was liable to the sudden visits of soldiers. There seems no reason for the remark that the Germans were indifferent to flowers, and did not care to grow choice fruits or vegetables. Not till the time of the later Stuarts do we get any information about German gardens. Before that history is a blank; probably very few existed. The earliest fact coming into prominence is that the gentry, when modeling their gardens, followed the French style as nearly as they could, and Hirschfield blames the Germans for their want of originality. They not only imitated French modes generally; they imitated upon their estates such gardens as those of Versailles and Trianon. It was a likely thing to happen, considering the intercourse between the two countries.

More intercourse with Britain and other nations brought about a change in the eighteenth century, and gardens appeared in which the English style was visible, and some were arranged after the Chinese mode. One author remarks that German sagacity and skill might improve on the methods of other countries, and develop a speciality which might be called German gardening. This, however, does not appear to have occurred. Anyhow, with French influence the people became lovers of flowers, as was noticed by Madame de Staël, who praises the beauty of the German gardens as she saw them. Some of the nobles had splendid grounds, in which they had bowers, beside which they placed Æolian harps, so that people might sit and be refreshed both by perfume and music. Then she adds that a delight in gardens always implies a love for the country, but if this is a rule there are many exceptions.

Meyer, who visited France and England in the eighteenth century, and who seems to have been the first to write upon German horticulture, considered his own country less favourable for gardening than Britain. For one thing, he noticed that his countrymen were unwilling to spare land to form parks and pleasure gardens, upon which fruit or vegetables could be raised. Rather oddly, too, he fancied the climate of Germany not so good on the whole as that of England, but does not give any particular reason. The most ancient German garden was presumed to be that of Schönbrunn, near Vienna. It was situated on a plain, across which ran a ridge of hills, and afforded some beautiful scenery. Count Esterhazy, who was fond of gardening, laid out grounds in several places, planting a variety of trees, also building conservatories. But the most famous garden was that at Potsdam. It was started in the French style, afterwards altered to the Dutch and

Italian taste, the palace being on a hill overlooking all the grounds. This garden was supplied in the eighteenth century with a number of glass structures, unusual then. The six terraces of the grand slope were 10ft high each, covered with glass, and devoted chiefly to Peaches and Vines. At the rear of the palace were other terraces of a greater extent, planted with fruit trees and vegetables, also having additional hot-houses and orangeries. At first, only a small part was set apart for banks of flowers, enclosed by high hedges. The first German garden modelled entirely in the English style is dated from 1750, the locality being near Pyemont, in Westphalia. It had the clumps and winding walks so frequent about Georgian gardens, and the proprietor spent much money in obtaining a rich collection of trees and plants. Second in importance was the more extensive gardens and park of Field Marshal Lacy, at Dornbach, near Vienna, planned by an English gardener twenty years later, which visitors came from a distance to see.

While horticulture was progressing, Prussia was able to make a larger display of geometric gardens than other parts of Germany, mostly commenced during the reign of Frederick II. He had one attached to his palace at Charlottenburg of great extent, but badly situated on a sandy flat near the River Spree, and the better garden at Heilegense, though smaller. The King obtained for this garden a grand collection of statuary. Here was a lake, with an island, and on this the kitchen of the adjacent palace was situated, designed as a temple, and reached by what Loudon calls a "subaquarin" passage.

Kraft, in a book published towards the end of the eighteenth century, states that the Duke of Baden's garden at Schwed-zingen was the most delightful then existing in Germany. The extent was about 300 acres, and it was on the banks of the Rhine. There had been much care taken in the propagation of exotic species, and one shrubbery was set apart for shrubs with fragrant leaves or flowers. The flower-garden was also extensive and varied. Groves of Orange trees were conspicuous.

A botanic garden is said to have existed in Hesse as early as the sixteenth century, but nothing is known about its history. This is certain, that botanic gardens did not become numerous in Germany till the eighteenth century was well on. One at Salm-Dyck is supposed to have been the first in which the hardy plants were grouped on the natural system, and Leipsic had one in which American plants figured largely. Carlsruhe Garden in 1727 is stated to have had 150 varieties of Lemons and Oranges, about which number we may have doubts. At Vienna and Frankfort, about the same time, the directors had secured many exotic plants which Britain could not then exhibit.

The Schönbrunn Botanic Garden displayed an imperial magnificence. It was commenced in 1753 by the Emperor Francis I., who sent parties of florists to several countries. They brought back quantities of plants and seeds, and for their propagation the Emperor built a number of hothouses, the largest then known in Europe. By an unfortunate accident most of the choice species in the big hothouses were destroyed in 1780. The man in charge let the fires go down low, and then suddenly raised the temperature, with mischievous results. One of the early botanic gardens where the hardy plants were arranged according to their countries was that of Berlin.

There is one thing in which the Germans got ahead of Britain (very likely in some other things too), and that is the planting of trees along roads and public thoroughfares. One German peculiarity used to be keeping the trunks bare of twigs and leaves to the height of from 10ft to 15ft, according to the exposure of the situation. About Berlin, Dresden, and Leipsic, the Poplar, especially the Lombardy, has long been a favourite, and Limes and Elms are common everywhere. In some of the warmer districts the Mulberry appears by the road-sides. Hedges never attained to popularity in Germany, most of the original hedges being made of Hawthorn or Hornbeam, interspersed with a few other wild shrubs.

During the reign of George III. the Germans took measures for the improvement of their native forests; and sowing planting, and pruning were carried out extensively. The native fruits, such as the Apple, Cherry, Pear, and Plum were the first cultivated in Germany, and new trees were mostly raised from seeds. It was not till after 1800 that grafting became at all general. During the preceding century a great advance was made in the cultivation of the Vine, especially in the warmer districts. The Hungarian vineyards became famous as producing the much admired Tokay wine. When the Apricot and Peach were introduced the Apricot was grown as a standard, and the Peach trained against walls. Frederick II. is said to have obtained the Pineapple from Holland, and was passionately fond of the fruit. With regard to vegetables, it is observable that the Cabbage tribe have long been favourites in Germany, and are eaten freely both summer and winter. The Potato, Kidney Bean, and Lettuce were got from Britain or Holland.—J. R. S. C.

The Treatment of Water.

In the "landscape gardening" sense, the treatment of water as fountains, lakes, streams, and ponds is quite one of the most important that the garden designer has to understand. His skilful manipulation of the stream at Blenheim Palace was said to have set a seal upon the fame of Lancelot Brown as a designer or planner of grounds.

The larger gardens can sometimes rely upon the diversity of their arboreal features, their pleasure grounds and lawns, avenues, orchards, flower borders, rosaries, herb and kitchen gardens, without any expanse of water at all; but not one that we can recall but would have been better for a placid, silvery sheet of water.

Mawson says: "A good-sized sheet of water is not only a welcome feature in the landscape, but is, under favourable conditions, most useful for boating in summer, for skating in winter, and fishing in almost all seasons. . . . Great care, however, needs to be exercised when introducing a natural feature such as a lake or a large pond, otherwise considerable sums may be spent, and the proprietor find, after all, that he has been led into useless expenditure." Mr. Mawson cites a case where several thousand pounds sterling had been expended uselessly, the "lake" having become only fitted for Osier-growing, and rapidly becoming an offensive cesspool.

"To make a lake enjoyable almost everything depends upon the reflections, and from the character of the objects upon the banks. Before setting out to plant the banks of the lake, it is well to consider that there may be too much foliage, as the leaves fall into the water and naturally make it foul."

Bowood may be taken as the ideal of how and where to form a grand lake. The east (and lower) end of a comparatively small stream, running past the base of a steeply wooded slope, in a wide depression of the pleasure gardens, was dammed, sluiced, and bridged. The result was a beautifully expansive lake of several acres, having sinuous edges, and of considerable depth in places. The overhanging trees are splendidly reflected in the waters, and the opposite side of the lake rises in terraces.

Planting a Shrubbery.

In the "English Flower Garden," written twenty or more years ago, Mr. Robinson says: "There are no plants so much neglected as flowering shrubs, and even when planted they are rarely well grown, owing to the traditions of what is called the 'shrubbery.'" Though the use of flowering shrubs has wonderfully increased of late years, and is still increasing, Mr. Robinson's remarks hold good to-day, the idea of the shrubbery too often being to cover up some ground and form some sort of screen as quickly as possible.

Many men whose business is in London are building houses for themselves twenty or thirty miles out, and before a house is begun a shrubbery is often planted reaching all the way along the frontage of the garden up to the side of the house, the shrubs being put in at 3ft or 4ft apart with Cherry and Portugal Laurels dotted amongst them, with here and there a tree of May, Laburnum, or Almond, suggesting to the passer-by that the work was given to a nurseryman whose one idea was to use as many shrubs as possible. The result will be that in three or four years the more coarsely-growing shrubs will have almost completely smothered the more delicate ones, and the shrubbery becoming a thicket, no one shrub having any chance of displaying its natural beauty of form. This is what Mr. Robinson speaks of with such contempt and abhorrence as the "muddle shrubbery," and may be seen in gardens not ten years old. The owners do not realise that every shrub, like every tree, has a beauty and a characteristic growth of its own.

The varieties of flowering shrubs are so numerous, while their list is being added to almost daily by new introductions from China, Japan, North America, and other parts of the world, that only a specialist in shrubs can be a really competent adviser as to the best sorts to plant. It does not need a specialist, however, to point out the shortcomings of the common form of shrubbery, but simply one who loves to see plants, shrubs, and trees grown in such a way that they may display their beauty of growth to the fullest extent, and it is with this latter object that these notes are written.

Though shrubs in general do not need a rich soil, they need to be given a good start if we are to get them in their full vigour of growth, and no plant or shrub in other than its full vigour of growth gives real satisfaction to a Nature lover. Hence the soil intended for the shrubbery should be deeply trenched beforehand, keeping the first and second spits in the same relative positions as before, and only adding animal manure if the soil is really poor. Basic slag or bone dust may, however, be added with advantage—the former if the soil is heavy, and the latter if it is light. If the newly-dug soil can be left to

mellow for a few months before planting it is well to do so, as it gives the shrubs a better start by reason of the finer soil to work amongst the roots at planting time, but it must not be at the expense of securing a favourable season for planting. It should always be borne in mind that if a tree or shrub is good enough to occupy space in one's garden it is worth while treating it with care.

There is some difference of opinion as to the best time to plant some kinds of shrubs, but most will agree that for deciduous shrubs the middle of October is the best time, though one may sometimes have to wait a week or two after this date for the soil to be sufficiently moistened by the autumnal rains when the summer and autumn have been very dry. Shrubs that are of the right size for planting, which have been carefully lifted and as carefully planted at this season, will show practically no sign of the move the following spring. It is not advisable to plant shrubs of a large size if ultimate results are kept in view, especially with evergreens. It is useful to know that all the Brooms are very bad subjects for moving, and they should therefore receive the utmost care, planting only small specimens, and those at the most favourable season. No shrubs

Emulsions.

Behaviour of Various Substances.

It would be tedious and unprofitable to describe at length the behaviour of the many substances which have been examined as regards their emulsifying powers; but they may be briefly enumerated, classing them roughly into those which give true emulsions, those which give imperfect emulsions or quasi-emulsions, and those which do not seem to emulsify at all. In some cases, however, it is rather difficult to decide in which class to place a particular substance, and, in others, the method of preparation affects the behaviour of the substance in question.

GOOD EMULSIFIERS.—Amongst soluble, or partially soluble, substances softsoap seems to be the best; dissolved starch, milk and flour are good, although the latter forms a flocculent, and not a creamy, emulsion, and milk gives rise to solid clots; glue emulsifies well, and so does egg-albumen, but the emulsion with the latter is rather frothy, owing to enclosed air bubbles;



An Effective Water Scene.

should be planted during frosty weather, and if they cannot be planted till late December it is as well to defer the operation till the early spring, though such late planting interferes considerably with the vigour of shrubs which commence growth very early in the year, such as deciduous Daphnes, Cydonias, Ribes, &c.

Such shrubs should be planted immediately after the fall of the leaf—before the leaves are all off in fact. With evergreens the case is different owing to the great evaporation from their leaves. It is from this cause that so many die after transplanting, especially among the Conifers, the roots not being able to make good the enormous loss of moisture caused by the keen east winds we so often get in the early spring, though doubtless when coming from a distance many get damaged in this way before being planted. Hence, unless evergreens can be planted in some damp weather in late August or September, or very early October, planting should be deferred till April, or even early May if the spring is very dry and bitter. Root action is then active and in a week or a fortnight after planting new roots will be formed, and then they are safe. It is important to give each shrub a watering without a rose to wash the earth among the finer roots. A vigorous upward shake of the shrub before all the soil is put back or trodden upon is also useful to the same end.—A. PERRIS.

saponin and quillaia bark give good emulsions when the proportion of oil present is not large. Amongst insoluble emulsifiers the basic sulphate of iron is the best, followed by those of copper and nickel; the basic sulphates of zinc and aluminium generally give good emulsions at first, but aggregation of the particle seems to occur, and causes partial de-emulsification. Ferrous hydroxide and the higher oxides of iron (hydrated) are good. The precipitate obtained by adding sodium carbonate to copper sulphate is a very good emulsifier, so are calcium carbonate and calcium arsenate when first precipitated, but the latter soon become crystalline, and de-emulsification follows; lead arsenate, freshly precipitated, is good, and zinc oxychloride, or basic chloride, is fair, although the emulsion with it is flocculent; some fine clays (unheated), such as Oxford clay, give good emulsions, but they, naturally, contain many gross particles which sink to the bottom unemulsified; ferrous hydrosulphide gives a good emulsion if the proportion of oil present is small.

SUBSTANCES PRODUCING QUASI-EMULSIONS, OR PRODUCING PARTIAL EMULSIONS.—Lime, silica, alumina, plaster of Paris and many fine powders which have been dried; also the following precipitated substances when in the liquids from which they have been precipitated: basic cadmium sulphate, magnesium hydroxide, copper hydroxide, the basic sulphates of

zinc and aluminium, stannous oxychloride, purple of Cassius, lead arsenate paste (a commercial preparation for insecticidal purposes), some clays and brick-earths, copper hydrosulphide, ferrous hydrosulphide (unless the proportion of paraffin is very low), and precipitated soda soap.

SUBSTANCES SHOWING LITTLE OR NO POWER OF EMULSIFYING.—Precipitated lead chloride, lead sulphate, barium sulphate, neutral silica solution, sulphur precipitated by adding acid to sodium thio-sulphate, flowers of sulphur and dried Paris-green (in both of which cases the powders seem to absorb the oil, forming a sticky mass which adheres to the syringe and containing vessel in an obstinate manner); an alcoholic solution of resin precipitated by water, ferrous ferricyanide, ferric ferrocyanide, and purple of Cassius (in the last two cases the precipitate is carried up by the oil in sufficient quantities to colour it strongly); and, lastly, any coarse, or even fine, powders, especially when present in small proportions.

Summary.

When paraffin oil is churned up with a solution of softsoap, an emulsion is formed which rises to the surface and generally contains 65 to 82 per cent. by volume of oil. Emulsions containing as much as 99 per cent. can, however, be obtained, and these are so stiff as to be almost solid. The character of the oil does not much affect the results, neither does the extent of the churning nor the proportion of soap, so long as this proportion is within certain limits. The amount of oil in an emulsion which has arrived at a state of equilibrium decreases somewhat from the top downwards, but there is often a tendency to arrange itself in layers of approximately uniform composition.

Solutions of other organic substances, such as glue, flour, milk, starch, albumen, saponin, &c., act as emulsifiers for paraffin oil. All these emulsions will often spontaneously become de-emulsified, and this occurs at once if the emulsifier is destroyed; for example, if an acid or any sodium salt is added to an emulsion with soap. Electrolytes, as such, seem to have no de-emulsifying action. The addition of unemulsified paraffin to an emulsion will gradually de-emulsify the whole. The oil globules in an emulsion are probably prevented from coalescing by being enveloped in a pellicle consisting of particles of solid much more minute than the globules themselves. The solid particles would be derived from the solution, which in all cases contains a substance with but little affinity for water, and insoluble in paraffin, it being, therefore, precipitated in the neighbourhood of the paraffin globules.

Apparently, a precipitate consisting of any insoluble substance which is wetted more easily by water than by oil, if in a sufficiently fine state of division, will equally act as an emulsifier, and in some cases it is possible under a microscope to see the coating of solid particles which envelop the oil globules. Emulsions made with an insoluble emulsifier are in every respect similar to those made with soap, &c., except that they never seem to de-emulsify spontaneously; spontaneous de-emulsification being, no doubt, due to the fact that the solid particles, as in the case of soap, are soluble in water, and are continually being redissolved and reprecipitated, thus affording opportunities for the coalescence of the oil globules.

The basic sulphates of iron and copper are amongst those substances which give excellent emulsions. They may be formed by adding lime, or lime-water, to the normal sulphates, and then the paraffin, when the slightest churning, or even shaking of the mixture, produces emulsification. Besides the ease of manufacture, and the absence of spontaneous de-emulsification, these emulsions possess the advantage of not being decomposed by the addition of caustic soda, as are emulsions with soap, and caustic soda is required when the emulsion is used as a winter wash for trees. When the copper salt is used, the emulsion possesses all the fungicidal properties of Bordeaux mixture.

Many other precipitated substances act as emulsifiers, but this property is destroyed as soon as they have been dried, or have by any other means been deprived of their fine-grained structure. Solids which are not sufficiently fine-grained to emulsify will, in many cases, when present in considerable proportions, form quasi-emulsions. In these, the particles of oil are merely entangled with the particles of solid, and may be separated from them by such simple means as dilution with water. Lime is an instance of a substance which forms a quasi-emulsion which can be used for spraying purposes. Other substances, including many recently-formed precipitates, and, probably, all crystalline solids, seem to be incapable of forming even quasi-emulsions.—(MR. SPENCER PICKERING, in the "Eighth Woburn Report.")

Artificial Manures for Onions.

Onions are fond of potash and of thoroughly rotted manure. A light dressing of dung, supplemented by five hundredweight of superphosphate, one hundredweight of sulphate of potash (or four hundredweight of kainit on light soils), and four hundredweight of nitrate of soda (given at two or three times) per acre give good results.



Acetylene-gas Refuse.

I observe that questions are often asked about the use of this material. An instance came under my notice a few seasons ago in October, of a bed of Onions in which scarcely a plant had formed bulbs, and the only reason to account for it was that the refuse was used on the ground direct from the gasometer. Practically every fruit dropped from the trees in a Peach house, owing, it was thought, to the trees having been watered with manure water made from the heap on which the gas refuse had been thrown. Since then I have used it (after its having been weathered for a season or two) with no perceptible disadvantage; and the crops even did well, as Potatoes, Pears, Lettuces, and a bed of Godetia. I have also used it freely for digging into the sub-soil, a marly clay, with advantage. I believe it may be used as ordinary lime if it has been exposed to the air for a year.—GEO. H. HEAD, Kingston Manor Garden, Taunton.

The Pedigree of the Potato.

It is a curious fact that our cultivated Potato, of which Messrs. Sutton, of Reading, recently exhibited no less than 400 distinct varieties at the R.H.S. Hall, is a mystery so far as its origin is concerned. A study of the history of its first introduction into Great Britain shows that for a very long period previously it must have served as a cultivated food plant in South America, where the original wild plants undoubtedly grew, and where several wild species still exist. None of these wild species, however, agree sufficiently with the specific characters of *Solanum tuberosum*, i.e., the Potato of commerce, to be accepted as the probable progenitor, and most of them differ so far that they are undoubtedly ineligible.

The terrible and sudden advent of the Potato disease in the forties of last century led to research with the object of discovering the wild plant, and by its means reinvigorating the cultivated one by crossing the two together. Such research did not actually begin till 1883, but it is only now that Mr. Arthur W. Sutton, of Reading, who recently read the results to the Linnean and Royal Horticultural Societies, presented a probable solution of the question.

A Chilean species, which has been erroneously named *S. etuberosum*, or the nontuber-bearing *Solanum*, has been cultivated at Reading for twenty years, during which time by simple cultivation in good soil the tubers have increased from the size of marbles to that of fair sized, marketable Potatoes, well shaped, of white colour, and practically undistinguishable in flavour from the Potato of commerce. Mr. Sutton thinks that in view of the original smallness of the tubers produced, the plant under wild and starved conditions would produce tubers so much smaller as to be considered mere enlargements of the roots, and that thus the original name *etuberosum* might have had some justification at the time. This species appears to be characterised by hairy foliage and different size and habit of haulm from *S. tuberosum*, and its pure specific character is further emphasised by the production of elliptical pollen grains instead of irregular ones common to all the cultivated varieties. Unfortunately the flowers have so persistent a habit of dropping off without fertilisation having taken place, that it is only after twenty years' cultivation that a single seed berry has been obtained, and it is this seed berry which promises to solve the mystery, since it has led to the production of twenty seedlings, some of which retain much of the *S. etuberosum* character, but as regards their crops, they are greatly varied in colour, shape, and size, and form in point of fact precisely such a crop as would be produced from a seed berry of *S. tuberosum*, the common Potato.

Here then, obviously, we have irresistible evidence in favour of a common origin, which means that *S. etuberosum* is the parent of *S. tuberosum*, especially as it is the only wild species which gives variable seedlings, or which has normally made the least approach to our commercial Potato in its tubers. Several of the seedling plants have already yielded improvements on the parental tuber, and the general nature of the variability indicates that in any case selective culture will find a liberal supply of material to work upon in subsequent generations.

This, however, is by no means all, since it would appear that *S. etuberosum* in itself is capable of resisting the Potato disease to a remarkable extent, since it has shown no trace of disease either in haulm or tuber for the whole twenty years of the Reading cultures, although it has been exposed season after season to the same risks as its neighbours, which have frequently been badly affected. Under these circumstances Mr. Sutton is to be warmly congratulated on the outcome of his

experiments, and on the very pleasant surprise which that solitary seed vessel prepared for him and all interested in the Potato itself.—C. T. D.

Echoes from New Zealand.

New Zealand is one of the most prosperous countries in the world at the present time, and is likely to improve and develop till it is a second Britain. Work in the building trade, and in fact in all trades, is at present brisk, though they have their slack times here as elsewhere. The wages are good. I am in no position to give an opinion on things horticultural, though I have had a fortnight in an orchard. I went Tomato planting (!) about three weeks ago to a place about twenty miles from here. The owner had about thirty acres of fruit trees, mostly Apples, and had Tomatoes planted between the rows of trees. He has to spray the trees three times a year with a solution of bluestone, arsenic, and lime, on account of the cod-lin moth. The trees were all covered with a pest called, I think, the mealy bug, but they cannot shift this, which eventually kills the trees, I was told. He had good crops of everything, and as he also had some hundreds of fowls, he made a tidy living out of the place; but I may say he worked early and late, and lived in an old shed of a place; and, in fact, led a life which, in general, would not do for a great many men I am afraid. The life in the back blocks (and it is to the back blocks the settler with little capital has to go on account of the price of land) compared with the higher life of the towns, is not worth the candle. The roads (where there are any) are bad, and the land is all overgrown with "bush," and even when cleared is not of the best. These are only a few of the things they have to contend with. The farmers are much troubled with noxious weeds, which they are compelled to keep down. Brambles are one of the worst of these. There is not much mixed farming done up this way; they mostly go in for dairy farming, which seems to give the best returns. They work on the co-operative principles, taking their milk to a factory, and getting it manipulated there on up-to-date methods.—ROBT. DICK.

Two Good Keeping Grapes.

At this season good keeping Grapes are much valued, and the kinds I will note as worth special attention are not only good keepers, but of excellent quality. Both are less cultivated than they deserve, and they are not at all difficult to grow if given ample warmth at the setting. This more refers to the white Grape Mrs. Pearson. I will note the black variety first (Appley Towers). This was raised at Appley Towers by Mr. Myles, and received a first class certificate from the R.H.S. in 1889, and since that date I have had good opportunities of testing its growth and keeping qualities, and it has proved most valuable for late supplies. I should have stated this is a cross from Gros Colman with Alicante, and the result is an oval, black, vinous Grape of first-class quality, berries of good size and splendid constitution, and a good setter. The growth is moderately robust, leaves large and thick, and the flesh firm, rich, and juicy, with a distinct flavour. It is a splendid variety for use at this season.

I have stated that Appley Towers keeps well; and in this respect I have had it good well into March and April by cutting from the Vine and placing in bottles or Grape ricks. Some growers may think, as regards its keeping, it is not so good as its parents, but some persons do not care for the Gros Colman, and though remarkably handsome and a better market Grape than Appley Towers, the last named is superior in quality—a point that should not be overlooked in a private garden. At times we are inclined to place size before quality, and this I note, as I fear both the varieties I have called attention to may suffer in this respect. But intending planters and those who may have had no opportunities to test the varieties named will have no need to fear planting the Appley Towers as a good black for late supplies. I admit it may be termed a medium sized bunch, but this is a gain in a private garden; huge bunches are not required, neither do they keep so well. As regards culture, this I need not go into. I have referred to the setting, and in this respect it is not unlike the Gros Colman, and a fair amount of heat is required, and a long ripening period.

The Mrs. Pearson was introduced some years before the last named, and by Mr. Pearson, of Chilwell, the well-known grower of fruit, and is the result of crossing Alicante by Ferdinand de Lesseps. Dr. Hogg, in the "Fruit Manual," says this is a delicious Grape, and it is one of the richest we have—remarkably handsome, and a good constitution, and was given a first class certificate by the R.H.S. in 1874.

This is a strong grower; leaves of medium size, thick, deeply lobed, and with a reddish colour, bunches above medium size; indeed, at exhibitions in the north I have seen some splendid bunches of this variety with huge shoulders. The berries are round, skin thick, flesh firm, sweet, and rich, with a decided Muscat flavour. Those who like the Muscat would do well to grow Mrs. Pearson for later supplies.—G. W., Brentford.

Colonial-Grown Fruit and Preserves.

The Royal Horticultural Society has done much in recent years to assist the fruit growing interests of British Colonies by holding three annual exhibitions of Colonial-grown fruit and preserves, and their March exhibition was opened on Thursday, March 5, by Sir Somerset French, K.C.M.G., the newly-appointed Agent-General for the Cape Colony, and previously the Postmaster General for the same province. The judges were Messrs. G. F. Butt, C. R. Fielder, M. Garcia, J. Hudson, and A. M. Walker.

PRESIDENT'S SPEECH.

Sir Trevor Lawrence said:—Ladies and gentlemen, there are a few points to which I should like to refer to very briefly, and the first of those is to tell you that we have been very much disappointed with regard to several exhibits which were expected. The fruit and the other Colonial products which we hoped to have had here to-day have arrived in London, but they have not been able to get down here, and I am told there is one important consignment which has been unpacked and photographed, and which has mysteriously disappeared for a time. This exhibition, ladies and gentlemen, is the tenth which the Royal Horticultural Society has held of Colonial fruit, and these ten exhibitions have only been going on since the year 1904. I do not know whether it is anything in this particular locality, or in this particular hall that stimulates the desire to improve, but it certainly has occurred that almost every exhibition of fruits and Colonial produce, as well as of other things, that has taken place in this hall has shown a marked advance on previous exhibitions.

Well, the object of the exhibition it is scarcely necessary to enlarge upon. It is to stimulate the production of the various exhibits which you see here to-day, and to do all that we can to increase their variety so that we may supply to this country, during the time that Nature forbids things being produced in the country itself, those fruits and other things which can be produced in our Colonies. We wish also to bring home to our Colonial friends the best methods of packing, sorting, and grading their goods, and also the best methods of marketing them in London. We also naturally are anxious that these shows should be visited as much as possible, and it is hoped that the Fellows of the society, their friends, and the public generally, will visit the exhibition in order that they may learn what supplies may be looked for from the different Colonies at different periods of the year.

There is one point I should like to refer to for a few moments, and that is that these shows are not held with the view of adding to the financial resources of the society. They cost us a considerable sum of money. In fact, I think it cannot be put at less than about £200 per year, when you consider the hall, and the setting up of the exhibits, and medals and the other sources of the expense. We do not grudge the money in the very least. All that we are anxious to do is to ensure that advantage shall be taken of the shows, that their merit and value shall be appreciated, and we think that the comparatively small sum which we expend on these exhibitions is very well spent if we can do that.

The society has the advantage of the presence to-day of Sir Somerset French, who has lately been appointed Agent-General to the Cape Colony, to whom we are also indebted for the very large variety of pictures of Cape scenery which you see here. The judges—I do not speak of the judges of art, but the judges of exhibitions generally—have felt that they owe a considerable debt of gratitude to Sir Somerset French for the very considerable trouble which he has taken in this matter, and they wish that he should have one of the medals of the society, not only in recognition of his kind contribution of the drawings which you see round these walls, but also on account of the great trouble and labour that he has taken in organising this exhibition. I conclude what I have to say by presenting the medal to Sir Somerset French, which I hope he will value as we value his presence here to-day. (Applause.)

Sir Somerset French in reply said:—Ladies and gentlemen, although I cannot lay claim to having had much experience of fruit cultivation, or the marketing of Colonial produce generally, having only very recently taken up the position of Agent-General of the Colony, I have very much pleasure in accepting the kind invitation of the President of the Council of the Royal Horticultural Society to be present at this most interesting exhibition. I am not altogether a stranger to the society, having many years ago been a subscriber to it when it occupied its old quarters in South Kensington. I am very glad to have this opportunity, on behalf of the Colonies, of giving expression

to our very great appreciation of the public spirit which has prompted the organisation of these most important exhibitions of fruit and produce, which cannot fail to be most beneficial, not only in bringing the consumer and producer into closer touch with each other, but in promoting indirectly that most desirable end—the opening up of new markets. (Hear, hear.) It is no new thing, ladies and gentlemen, for the Royal Horticultural Society to take an active interest in Colonial horticulture and fruit-growing. Nearly a century ago, I am given to understand, it sent out seeds, cuttings, and grafts of fruit trees to South Africa, and at its early shows, as far back as the reign of King William IV., specimens of the beautiful Heaths for which Cape Colony is so celebrated were a favourite exhibit. But it is, as I have already said, to its recent efforts to forward their interests that the Colonies are specially indebted to the Royal Horticultural Society. The holding of these different shows at a time when the produce of the different Colonies is at its greatest perfection is a most excellent and practical idea, which I think must commend itself to us all—(hear, hear); and I am glad to learn that already the results are so encouraging as Sir Trevor Lawrence has told us, whilst fruit growers must, I am sure, very greatly appreciate the additional service which the society has voluntarily undertaken, of giving advice as to the best qualities of fruits to cultivate, and the steps to take to meet the difficulties which confront the industry all over the world.

As a fruit-growing country, South Africa, as most of you are aware, possesses exceptional advantages. Being situated south of the Line, its fruits come to maturity at the season of scarcity in the northern hemisphere, whilst the magnificent climate, and the temperatures varying in different parts from tropical to temperate, put it in a position to supply the European markets with an immense variety of fruits in almost unlimited quantities, provided, of course, that the means of transport and the distribution have been fully organised. That is, of course, one of the great essentials. Like many other industries, success in fruit growing and marketing is only to be achieved by constant care and study, and it says a great deal for the perseverance and the energy of those concerned that such excellent displays as we see around us to-day can be placed on the market after a journey, in many cases, of upwards of 6,000 miles.

In the earlier days of the industry, experience was, I am afraid, somewhat dearly bought; but of late years, under the fostering care of the Government, the general conditions have been much more favourable. In Cape Colony expert advice is freely given to farmers, and lectures on the subject of the best and most suitable varieties to cultivate, and how to deal with the various pests which the fruit grower has to contend with, are distributed broadcast. I may say that pests seem to flourish in South Africa; the climate seems to suit them, and they present a very serious difficulty. Government experts have been appointed to give practical demonstrations of the best methods of tackling them. On the railways, cars specially designed for fruit transport have been provided, and farmers who desire to do so can purchase boxes and packing materials at a moderate price from the nearest railway station-master, and can even consign through the Colonial trades' commissioner in London any fruit they may have. At the docks in Cape Town cool chambers have been arranged for, where fruit is stored at a proper temperature pending shipment, and Government inspectors have been appointed whose duty it is to inspect, grade, and mark with Government brands the consignments of any growers or shippers who desire to avail themselves of their services. The question of the most suitable temperature to be maintained during the voyage to England has also been satisfactorily solved, which is a somewhat important matter—(hear, hear); and on the arrival of the consignments at Southampton they are personally examined by our able and indefatigable trades' commissioner, who reports without delay to the Government should any circumstance leave room for improvement, or the quality or variety of the fruit be unsuited for the English market. This year the supply of stone fruit has not been quite up to the average. That is largely due to the season in South Africa not having been a favourable one, a drawback to which, of course, every country is liable. Some consignments have also fallen short of the usual standards of excellence, and the prices realised have in consequence been below the average. This, although doubtless very disappointing to the grower, is not without the area of consumers. It is rather a desirable thing sometimes to get on to costermongers' barrows, because it is a very good advertisement.

Speaking generally, the quality as well as the quantity of African fruit imported into this country is year by year increasing in a most satisfactory manner, and there is every prospect of a large trade being built up in the near future. This year Melons of various kinds will be brought over from the Cape Colony in large quantities. The season for Apricots, Peaches, and Nectarines is drawing to a close, but that for Pineapples will shortly commence, and a number of shipments of

varieties of table Grapes, for which the Cape Colony, if I may say so, is famous, are now on the water. All that is necessary to make the industry a success is the opening up of new markets and the extension of those which already exist. Our trades' commissioner is doing his best to secure this end, and I have no doubt that one of the results of this exhibition will be a more extended knowledge of the capabilities of the Colony as a source of supply at this season of the year.

I ought to have said that I feel very much gratified to Sir Trevor Lawrence for what he has said relative to getting together such a fine exhibition; but I feel that I must disclaim having done so very much. The praise is due to my friend, the trades' commissioner, who has been happy to do everything possible to promote the fruit industry of the Colony which he represents. I hesitate to say anything much about the exhibit of views of South Africa—at least, I should have hesitated if I had not won a prize for it—because one does not usually vaunt the praises of one's own exhibits. There are, if I may say so, very interesting pictures, because they are very typical of South African scenery, and they have a particular value to myself personally, in that they were the gift of my own colleagues in the Post and Telegraph Department of the Colony on my retirement from the service at the end of January last. (Hear, hear.)

The beautiful hall had been very effectively arranged, and the fruits tastefully set out. South African exhibits monopolised half of the hall, exhibits from Cape Colony predominating. Peaches and Plums were shown, and Pears of several varieties. The Grapes were considered of better quality than those exhibited twelve months ago, the Hannepoot and Raisin-blanc being worthy of special mention. Cape Melons, Spansects, Canteloupe, and Hero of Lockinge are among the favourite varieties, and, it is understood, have reached Covent Garden this year before the French Melons, which is a reversal of the usual order. There are large exhibits of preserves. Their numerous varieties, and the large abundance of supplies make them a valuable adjunct to our national commissariat. The Nova Scotia Government exhibited a collection of Apples, the fine quality and beautifully fresh appearance of which made it difficult to realise that they were picked from the trees some six months ago, and proved the wonderful keeping properties of the fruit grown in this favoured Province. Amongst the varieties shown were Baldwin, Fallawater, King's, Blenheim, Golden Russet, Stark, and Nonpareil. The returns of the Nova Scotia Apple crop for last season was 700,000 barrels, and a country which can produce fruit so prolifically and of such splendid quality must have a great further development of this important industry.

The Army and Navy Stores made a very fine grouped show of excellent fruits, including Seville Oranges, Mangoes, and green Ginger from Jamaica. Cape Plums, Apples, Pears, Peaches, Grapes, Nectarines, Granadillas, green Ginger and Melons, and also the first arrival of South Australian Apples of the coming season. For the first time Cyprus sent an exhibit comprising bitter Oranges, oval Oranges (some weighing from 1½ lb to 1½ lb each), and a case of preserves, jellies, and crystallised fruits.

The band of the King's Colonials performed in the hall on each day of the exhibition. This was a new feature at an R.H.S. show, and has been subscribed for by exhibitors, thus adding to the enjoyment, and a lounge for afternoon tea was also provided. The exhibition remained open on Friday.

AWARDS.

GOLD MEDALS.—To Mrs. C. du P. Chiappini, for table fruit decoration and collection of fruit; T. J. Poupart, Esq., Covent Garden, for Grapes, Apples, Melons, &c.; Army and Navy Auxiliary Stores, for collection of Colonial fruits; Agent-General for Nova Scotia, for Apples.

SILVER-GILT KNIGHTIAN MEDAL.—The Cape Orchard Co., Cape Colony, for Apples, Peaches, Plums, &c.; Messrs. Jackson, for Cape bottled fruits and preserves; Messrs. Westmacott and Co., for wines, bottled fruits, and liqueurs; Messrs. Brown and Maxem, Covent Garden, for Melons, Grapes, Apples, &c.

SILVER-GILT BANKSIAN MEDAL.—Sir Somerset French, K.C.M.G., for paintings; Rhodes Fruit Farms, for bottled fruits and preserves.

SILVER KNIGHTIAN MEDAL.—Rhodes Fruit Farms, Groot Drakenstein, for Pears and Plums; A. Chiappini, Esq., The Retreat, Cape Town, for Grapes; Messrs. Malan Bros., Constantia, for Pears; Hon. J. W. Sauer, Uitkyk, Paarl, for Grapes; S. L. Simon, Esq., Durban, for collection of Cape fruits.

SILVER BANKSIAN MEDAL.—B.W.N. Specialities, for jellies, &c.; Myers and Co., for preserves; G. S. Hauptfleisch, Esq., Hugnot, S. Paarl, for Grapes; Mr. Nicholson, Stellenbosch, Cape Colony, for Grapes, Nectarines, Peaches, &c.

BRONZE BANKSIAN MEDAL.—O. C. M. Barry, Esq., Rustenburg, for Pears and Plums; Heynes, Matthew and Co., for sauces.

United Horticultural Benefit and Provident Society

ANNUAL MEETING.

The annual general business meeting was held in the Council Room of the Royal Horticultural Society's hall at Vincent Square, Westminster, on Monday evening, March 9. Mr. Charles H. Curtis, chairman of committee, presided over a small but ardent gathering. The proceedings passed very quietly, and we may reasonably presume that the committee satisfy the members that the business of the society is well managed. It was stated that £2,200 was invested in 1906, drawing £73 interest; while last year a sum of £2,150 was invested at £77 interest. The thanks of the members were therefore passed to Mr. James Hudson, V.M.H., for having so ably purchased stock. The retiring members of committee, Messrs. Bedford, Burge, and Stannage, were unanimously re-elected, and a very hearty vote of thanks was accorded to the committee in general. On behalf of the committee the chairman said that the members of that body were faithful workers, and attended regularly, always, of course, at their own expense, and frequently at some personal discomfort and inconvenience. On one recent very foggy night, three of them tried, but were unable to reach the meeting place, and had to return home. The secretary, Mr. W. Collins; the treasurer, Mr. W. P. Thomson; the auditors, Mr. W. Gunner, F.S.A.A., and Mr. T. H. Pusey, F.S.A.A., were each re-elected and heartily thanked.

REPORT FOR 1907.

The committee has again great pleasure in presenting its annual report. During the year 1907 the society has made steady progress. Sixty-two new members joined, but thirty-six have fallen out of the ranks (several having gone abroad), and eight have died, thus leaving a net increase of eighteen, the smallest increase for several years. The membership now stands at 1,246.

The loss of an old and valued friend and trustee, the late Mr. George Wheeler, has to be recorded. Mr. G. Wheeler and his brother, Mr. Joseph Wheeler, were trustees for thirty-one years. With the death of Mr. G. Wheeler, and the issue of new rules, it became necessary to elect new trustees. Accordingly, at the annual general meeting in March, 1907, Mr. James Hudson, Mr. Riley Scott and Mr. Charles H. Curtis were elected trustees, and Mr. William P. Thomson was elected treasurer, in the place of Mr. James Hudson, who retired from that office.

Sick pay was very heavy during the year, but it must be remembered that members who have been ill more than twelve months are now paid from the Sick Fund instead of from the Benevolent Fund. There are now five chronic sick members on the fund. The amount of sick pay for the year was £480 7s. 6d. This amount is apportioned to members at 9s. 3d. and 6s. 2d., according to scale. Large amounts have been paid out at members' deaths to their nominees, the largest being over £133. Over £70 was also paid out to one lapsed member. Several members over sixty years of age have taken advantage of the new rules, and drawn the interest on their balance in the ledger. These payments will doubtless increase in the future, several other members having now nearly reached that age. There are fifty-four members over sixty years of age; forty-eight over fifty-five years of age, and seventy-two over fifty years of age.

The Benevolent Fund has been greatly relieved by the transfer of chronic sick cases to the sick or benefit fund. Every member also now pays 3s. annually, which increases the receipts considerably. The amount paid from this fund to members over seventy years of age, and in special grants, was £107 9s., against £132 5s. during 1906. The Convalescent Fund has not been much used during the past year, only £4 having been paid to three members. The receipts from members have been small. Messrs. Hurst and Son kindly gave their usual £5 5s. to this fund. The expenses of management are a little less this year, being £215 2s. 4d., against £248 0s. 2d. in 1906, the higher sum in the latter year being due to the expenses of the new rules. The annual dinner in November was presided over by Sir Albert Rollitt, LL.D., D.C.L., who made an excellent chairman, and also became an honorary member. The dinner was not a financial success, the balance being on the wrong side by about £3. The continuing of this dinner as an annual function has exercised the mind of the committee, and it is possible that some modification of this event may be necessary.

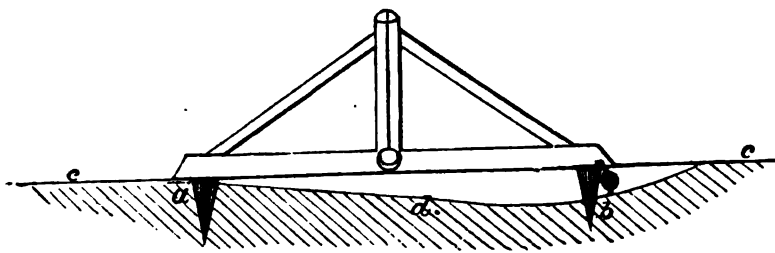
The great feature of the annual dinner was the presentation to Mr. James Hudson, V.M.H., of a very handsome solid silver tea and coffee service, with a large framed portrait of himself, as a token of esteem and recognition of valuable services rendered to the society as treasurer during the past twenty-five years. The members were invited to contribute

to this presentation and they responded nobly. After all expenses had been paid, it was found that there was sufficient money in hand to enable the committee to add a pair of solid silver candlesticks to the tea and coffee service. Needless to say, Mr. Hudson was greatly delighted with this substantial evidence of the high regard in which he is held by the members.

The committee is grateful to the honorary members for their continued support, and ventures to hope that other gentlemen will also become subscribers. The committee also would again urge the members to help increase the membership, by pointing out to young gardeners the great advantages that the society offers, as it is a Benefit Society, Insurance Fund, and Savings Bank combined, and is worked on safe and economical lines.

Levelling Ground.

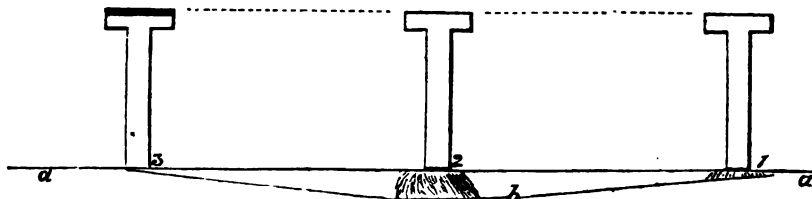
If ground presents an uneven surface, or is formed of a sloping bank, either inconveniently steep or presenting an irregular surface, it will be necessary to level it, which may be



Levelling Ground. (Fig. 1.)

done in the following manner: Take a stout peg and drive it into the ground, as *a*, Fig. 1; take a level—either such as is used by bricklayers, as in Fig. 1, or a parallel straight-edge containing a spirit tube, commonly known as a spirit level—drive in as many pegs as are required, as *b*, to the same level as the first peg *a*. The level line, *c, c*, is the line required; the ground line, *d*, is the uneven surface of the ground, which requires filling up to the level at the peg *b*. As soon as the pegs are in, level the ground with a spade, keeping the earth full up to the top of the pegs, tread it firmly all over, rake it carefully, and roll it well.

If the ground chosen should be sloping, as *b*, Fig. 2, two depths must be determined upon, one at the highest and one at the lowest point. Place a borning-rod at each of these points, as at points 1 and 3, place another in any point between the two, as the intermediate borning-rod 2. By looking over the top of rod 1 the person holding the intermediate rod can be directed to lower or raise it as occasion may require, until it is brought to the proper level, as rod 2. Rod 1 is supposed to be a little raised by placing some earth under it for the pur-



Levelling Ground. (Fig. 2.)

pose of getting it to the proper level *a, a*—that is, the level determined upon. Rod 2 is elevated until the top edge forms a direct line with rods 1 and 3. Rod 3 is placed on the natural ground. The cross piece of rod 3 should be 1 in broader and higher than the others—that is to say, if rods 1 and 2 are 4 ft high, rod 3 must be 4 ft 1 in, but a line must be drawn exactly at 4 ft, and the top inch painted black. On looking over rod 1 the black line on rod 3 can be seen more distinctly than the top edge of the rod would be, and intermediate rod 2 can be placed more correctly in a line with the top of rod 3—that is, under the edge of the black, than by looking over the tops of the three rods.

The borning-rod is composed of a thin piece of board about

4in wide, half an inch thick, and about 4ft in length. The head is a similar piece of board placed crossways, but only about 18in in length. The upper and under edge of the board must be perfectly straight and at right angles with the body.—R. R.

Trees and Shrubs.

Hymenanthera crassifolia.

A pretty little shrub, which does not frequently find its way into gardens, is that called by the name of *Hymenanthera crassifolia*, a member of a small genus from the Antipodes, occasionally to be met with in the collection of the enthusiast in shrubs or the cultivator of alpine flowers. Its little Violet-like flowers are inconspicuous and hardly sufficient to commend it to the many, but these are followed in autumn by small white berries, which look pleasing among the small, dark green, leathery-looking leaves and the ash-coloured branches. This *Hymenanthera* is sometimes described as a greenhouse species, and it appears as such in some recent works of reference, although it is fairly hardy. In my own garden it is hardy, and is one of the shrubs which few people seem to know. Its height ranges from a foot to as much as 3ft or 4ft, but one seldom meets with it in the open more than 2ft high or so. Although it is said to prefer a peaty soil, it is not fastidious, and will flourish in a light loam without any peat. It is a native of New Zealand, and harder than its congener *H. dentata*, introduced from Australia in 1820, more than fifty years before that now under notice.—DUMFRIES.

For present, planting the following may be commended: *Rubus deliciosus*, *Rubus odoratus*, *Pyrus Malus atrosanguinea*, *Pyrus Scheideckeri*, *Spartium junceum*, various hardy *Fuchsias*, and several shrubby *Spiræas*.

The Giant Trees of California.

Sequoia (or *Wellingtonia*) *gigantea* was discovered by that young martyr of science, David Douglas, in 1826, and his journal of an excursion to obtain its cones is one of the most exciting of narratives. We have space only for one extract:—

"Thursday, October the 25th. Weather dull, cold, and cloudy. When my friends in England are made acquainted with my travels I fear they will think that I have told them nothing but my miseries. This may be very true; but I now know, as they may do also if they choose to come here on such an expedition, that the objects of which I am in quest cannot be obtained without labour, anxiety of mind, and no small risk of personal safety, of which latter statement this day's adventures are an instance. I quitted my camp early in the morning to survey the neighbouring country, leaving my guide to take charge of the horses until my return in the evening, when I found that he had done as I wished, and in the interval dried some wet paper which I had desired him to put in order. About an hour's walk from my camp I met an Indian, who, on perceiving me, instantly strung his bow, placed on his left arm a sleeve of raccoon skin, and stood on the defensive.

"Being quite satisfied that his conduct was prompted by fear and not by hostile intentions, the poor fellow having probably never seen such a being as myself before, I laid my gun at my feet, on the ground, and waved my hand for him to come to me, which he did slowly and with great caution. I then made him place his bow and quiver of arrows beside my gun, and, striking a light, gave him a smoke out of my own pipe and a present of a few beads. With my pencil I made a rough sketch of the cone and Pine tree which I wanted to obtain, and drew his attention to it, when he instantly pointed with his hand to the hills fifteen or twenty miles distant towards the south, and when I expressed my intention of going thither cheerfully set about accompanying me. At mid-day I reached my long-wish-for Pines, and lost no time in examining them and endeavouring to collect specimens and seeds. New and strange things seldom fail to make strong impressions, and are, therefore, frequently overrated; so that lest I should never again see my friends in England to inform them verbally of this most beautiful and immensely grand tree, I shall here state the dimensions of the

largest I could find among several that had been blown down by the wind. At 3ft from the ground its circumference is 5ft 9in; at 13ft, 17ft 5in; the extreme length 245ft. The trunks are uncommonly straight, and the bark remarkably smooth for such large timber, of a whitish or light-brown colour, and yielding a great quantity of bright amber gum. The tallest stems are generally unbranched for two-thirds of the height of the tree; the branches rather pendulous, with cones hanging from their points like sugar-loaves in a grocer's shop. These cones are, however, only seen on the loftiest trees, and the putting myself in possession of three of these (all I could obtain), nearly brought my life to a close.

"As it was impossible either to climb the tree or hew it down, I endeavoured to knock off the cones by firing at them with ball, when the report of my gun brought eight Indians, all of them painted with red earth, armed with bows, arrows, bone-tipped spears, and flint-knives. They appeared anything but friendly. I endeavoured to explain to them what I wanted, and they seemed satisfied, and sat down to smoke, but presently I perceived one of them string his bow, and another to sharpen his flint-knife with a pair of wooden pincers, and suspend it on the wrist of the right hand. Further testimony of their intentions was unnecessary. To save myself by flight was impossible, so, without hesitation, I stepped back about five paces, cocked my gun, drew one of the pistols out of my belt, and holding it in my left hand and the gun in my right, showed myself determined to fight for my life. As much as possible I endeavoured to preserve my coolness, and thus we stood looking at one another without making any movement or uttering a word for perhaps ten minutes, when one at last, who seemed the leader, gave a sign that they wished for some tobacco: this I signified that they should have if they fetched me a quantity of cones. They went off immediately in search of them, and no sooner were they all out of sight than I picked up my three cones and some twigs of the trees, and made the quickest possible retreat, hurrying back to my camp, which I reached before dusk. The Indian who last undertook to be my guide to the trees I sent off before gaining my encampment lest he should betray me.

"How irksome is the darkness of night to one under my present circumstances! I cannot speak a word to my guide, nor have I a book to divert my thoughts, which are continually occupied with the dread lest the hostile Indians should trace me hither and make an attack. I now write lying on the grass with my gun cocked beside me, and penning these lines by the light of my Columbian candle—namely, an ignited piece of resinous wood."

As a standard of comparison we remind our readers that the London Monument is 202ft high, so that the *Sequoias* (*Wellingtonias*) are higher than that by more than from 80ft to 90ft.

The following list of the synonymes of the tree we copy from "Gordon's Pinetum":—"Wellingtonia gigantea, Lindley; *Sequoia gigantea*, Endlicher; *S. Wellingtonia*, Seeman; *Washingtonia gigantea*, of the Americans; *W. californica*, Winslow; *Americanus giganteus*, Hort. Amer.; *Taxodi, sp.*, Douglas; *Taxodium Washingtonianum*, Winslow.

According to Mr. G. L. Trask, who formerly exhibited a portion of the bark set up in the Crystal Palace to show the great size this tree attains in its native state, gives the following as the dimensions of one of the largest of eighty trees, growing in a grove at San Antonio—viz., height, 363ft; circumference near the ground, 93ft; circumference 100ft from the ground, 45ft; bark, 18in thick; age according to annual rings, from 3,000 to 4,000 years. It is found growing on the slopes of the Sierra Nevada, near the sources of the Stanislaus and San Antonio, in Upper California, in sheltered valleys, at an elevation of about 5,000ft. It is quite hardy, and grows rapidly.



Bases of two Sequoia Trees.

Rhododendrons.

This is the season when Rhododendrons may be planted. It being agreed upon all hands that these are the finest of hardy-flowering evergreen shrubs, an over-abundance of them is hardly possible. At Leonardslee, near Horsham, Sussex, where the finest of the arboreum and indicum varieties and the Himalayan hybrids are so well cultivated in the open air, a special nursery of considerable extent is set aside for the propagation of several hundreds of Rhododendrons each year, and yet Leonardslee is not overcrowded. These beautiful evergreens are seen to the best advantage when massed in beds. Of course, solitary bushes, when fully developed, are often very large, say 12ft high and as much as 20ft in width. The Waterers in the South, and Messrs. Clibrans, Dicksons (Chester), and Richard Smith and Co., in the North, each have extensive collections. Among the best kinds are Concessum, Delicatissimum, Everstianum, also those bearing the names of the Waterers; with Minnie, Mum, Mrs. Holford, Mrs. Tom Agnes, Pink Pearl, Sappho (with crimson blotch), John Walter, Mrs. E. C. Stirling, and Lady Eleanor Cathcart.



Bed of Rhododendrons, Sappho.

Microscopic Gardening.*

(Concluded from page 202).

There can be no doubt that among the most important results to horticulture and agriculture, obtained by microscopic gardeners, are those which have led to our modern suggestions for the practical treatment of diseases of plants.

So long as people believed, with Unger, that a parasitic fungus was merely a diseased exudation of the plant itself, no proper treatment could be thought of, and long afterwards, while men only knew that a parasitic disease was at work by the extrusion of the fungus spores, it was impossible to attack the matter successfully, because the existence of the disease was not recognised till it had all but run its course—it was like calling in the doctor when we recognised the patient was dying.

As soon as the proof was forthcoming that a parasitic fungus has a determinable life history, partly outside and partly inside the plant, however, it became clear that, provided we can catch the spores or fungus outside the plant, it ought to be possible to attack them. Even the earliest discoveries of De Bary and his contemporaries showed that this hope was not a vain one.

When it became clear that the "smut" of corn, the fungus of wheat "rust," and the "mildews" of the Rose, Vine, Hop, and Potato, only dwell for a few weeks in the tissue of the host, and that before they establish themselves in these tissues the spores have to pass through a period of germination, in which their delicate germ-tubes are so exceedingly sensitive to external agents that the merest trace of acids or alkalis, or poisons of various kinds, kills them in a moment, it seemed obvious that all we had to do was to apply a selected "weed-killer" to the germinating spores.

Now you all know how comparatively easy it is to kill weeds on a gravel path, where no considerations for other plants need affect our calculations as to the kind of poison used, or the quantities and strengths employed; well, just in the same way the microscopic gardener, by applying antiseptics to his pure cultures, soon found that a mere trace of sulphurous gases, carbolic acid, copper salts, corrosive sublimate, and so on, at once destroys the baby fungus-plant as it emerges from the spore.

But when it came to applying such poisons to the spores germinating on the host-plant—i.e., on a Rose, Vine, Hop, &c.—matters were complicated by the very biological conditions which render it much more hazardous to attempt any poisoning treatment on weeds in a lawn or in a flower bed—viz., you run the risk of the "weed-killer" destroying not only the weeds but also the grass and choice plants you want to save.

It is clearly not a philosophical, nor even a defensible, attitude of mind to rail at this inevitable state of affairs; Nature may be circumvented and ingeniously interfered with—cajoled, if you like—in various ways, but she will surely not be moved by vituperation.

Experts in microscopic gardening soon showed that in some cases at least success was possible.

As early as 1858 Kühn had observed that certain smut-fungi

(bunt) obtain access to the seedling owing to their spores adhering to the grain and germinating when it does so, and found that steeping the grain in copper-salts kills these spores without hurting the more resistant grain. The practice of steeping grain has now been carried to such perfection that very little bunt ever appears now. It is important to notice that the intelligent application of these preventive measures depends entirely on a proper knowledge of the life history of the fungus and its relation to the host-plant, and this knowledge was only obtained by microscopic gardening. But the testing of the new knowledge by experiments in the open must be referred to the grower on a large scale, and we must not forget that only by experiments can these matters be tested.

But an even earlier application of the knowledge obtained by microscopic observations of parasitic fungi was the recommendation of powdered sulphur scattered over plants affected with mildew by the late Mr. Berkeley, one of the ablest observers of fungi we have ever had.

The methods of applying remedial measures to plant diseases have increased and varied much since those days, and although there is still much to learn, we have learnt much; but throughout the long story of accumulating experience the one truth steadily rings—all experiments with fungicides must be planned with due regard to a knowledge of the habits of the fungus and with intelligent interest in the behaviour of the host under treatment. The treatment which is efficacious in dealing with "damping off" of seedlings must be varied when we deal with "finger and toe," which Dr. Somerville and Mr. Massee have shown can be successfully combated by lime; and neither procedure will serve with "bunt" or "smut" or with the "Potato disease," "Vine disease," or Hop and Rose mildews. Still different must be our procedure when dealing with "dry-rot" and the various diseases of trees, and so on.

During the course of the investigations which have gradually perfected our knowledge of microscopic gardening, another aspect of the matter has slowly forced itself on our attention.

Even the earliest exact observations on the infection of plants by parasitic fungi raised the question as to the behaviour of the host-plant. Can we regard a living leaf or root, &c., as a mere passive soil on which the germinating parasite grows; or must we not rather assume that it plays a more active part in the matter?

Long ago De Bary, impressed by the remarkable behaviour of the infecting germ-tubes, hazarded the conjecture that the contents of the cells of the plant attacked must probably react in some peculiar manner to the invading organism, and some of the most wonderful results of twenty-five years of microscopic gardening have assured us that his conjecture was well founded.

Curiously enough, this aspect of the question first came into prominence during some observations on microscopic gardening made by Pfeffer in an entirely different connection. He found that when the zoospores of certain Saprolegnias congregated round a piece of fly's leg, or bacteria round a bubble of air or a piece of meat, or the spermatozooids round the mouth of an archegonium of a moss or fern, their movements towards these centres of aggregation were such as could only be explained on the assumption that some attractive influence compelled them

* By the late H. Marshall Ward, D.Sc., F.R.S., before the Royal Horticultural Society, 1897.

towards the object they centred around, and he discovered in each case that a definite chemical body exerted the attraction. So complete was the proof, that Pfeffer could attract any of these organisms out of a mixture into microscopic tubes of the particular chemical which exerts this curious attraction.

Pfeffer's pupil, Miyoshi, then showed that fungus-hyphae are subject to similar chemotactic influences. If a fungus is allowed to grow in a microscopic garden-bed containing a mere trace or none of the particular chemical found to attract it, and another microscopic garden-bed at a little distance contains more of this substance, the fungus leaves the former bed for the latter.

Now the suggestive part of the matter comes in when we learn that just these particular attractive chemicals are formed in the plants attacked by fungi, and the germ-tubes leave the outside of the plant, and penetrate into the tissues in obedience to this chemotactic influence; at least, there seems no other explanation of the curious phenomena witnessed, for it is possible to make a fungus which ordinarily is not a parasite enter into a leaf and become parasitic by artificially injecting the leaf with the attractive chemical, and we have reason to believe that in many cases of epidemics the disastrous onslaught of the parasite is in great part due to the fact that the cells of the host-plant are unduly charged at the time with such substances as I have referred to.

No less remarkable are the discoveries which microscopic gardening has elicited concerning the way the fungus attacks the solid cell-walls of the host-plant. Solvents of various kinds have been shown to be excreted from the tips of the fungus-tubes, which dissolve the cell-walls and enable the tubes to penetrate and pierce holes through what would otherwise be impassable barriers; and if a drop of such solvent be squeezed out, and a piece of solid cell-wall be steeped in it, the latter melts away under our eyes. As Professor Green has shown, similar bodies are produced by pollen-tubes, so that we now see how these pierce their way down the style of the flower.

Not because I have exhausted the subject, but in fear lest I should exhaust your patience, I am led to bring this sketch of the subject and results of microscopic gardening to a close. I hope sufficient has been made clear to show that gardeners on a large scale—by which I mean horticulturists, farmers, and foresters, as well as all who grow plants—are vitally concerned in the minute operations of microscopic gardening, for not only are investigators bringing to light daily discoveries of the highest importance to science as a whole, but results of the greatest practical importance; and I am sure you will agree with me that just as these gardeners on a minute scale have learnt, and still have to learn, much from your practice on a large scale, so you will find much of value and interest in their pursuits, which have to be conducted with a rigour and precision worthy of comparison with the most refined and difficult operations of modern culture, and demanding the highest scientific attainments.

Horticultural Science.

R.H.S. Scientific Committee, March 3rd.

Present: Sir John T. Dillwyn-Llewelyn, Bart. (in the chair); Prof. G. S. Boulger, Rev. W. Wilks, Messrs. A. W. Sutton, A. R. Rolfe, J. Douglas, J. T. Bennett-Poë, C. T. Drury, L. de B. Crawshaw, G. Massee, G. S. Saunders, W. Cuthbertson, G. Gordon, W. Hales, A. Worsley, E. M. Holmes, S. U. Pickering, F. J. Chittenden (secretary), and numerous visitors.

Inheritance of Albinism in Orchids.—The following communication was received from Mr. C. C. Hurst, F.L.S.:—Two distinct and definite cases of albino orchids producing coloured forms when crossed were recently brought before this committee by Mr. H. J. Chapman. Such facts, accepted by the Mendelians, are important, inasmuch as they go to show that albinism in orchids is inherited in a similar manner to albinism in Sweet Peas and Ten-week Stocks, and in accordance with Mendel's Law. An albino orchid is distinguished from a coloured one by the absence of purple sap. For instance, the well-known *Paphiopedilum* (*Cypripedium*) *insigne* Sanderae is an albino form from which the purple sap of the type has disappeared. Recent experiments with Sweet Peas and Stocks, carried out by Mr. W. Bateson, F.R.S., Mr. R. C. Punnett, and Miss E. R. Saunders at Cambridge, have fully demonstrated that the appearance of sap colour depends on the simultaneous presence of two colour factors. If both of the colour factors are present the sap is coloured, but if either (or both) of the colour factors is absent, the sap is colourless. With regard to the cases of *Paphiopedilum* (*Cypripedium*) brought forward by Mr. Chapman, for the sake of simplicity we will call the two colour factors C and P. The typical coloured forms of *P. insigne*, *P. bellatulum*, *P. callosum*, and *P. Lawrenceanum* will therefore be carrying both of the colour factors C and P. Their

albinos will, on the other hand, be carrying either the C factor alone, or the P factor alone (or neither). The known facts of the breeding of albinos of these four species seem to be in accordance with the conception that *P. insigne* Sanderae and *P. bellatulum* album are carrying the factor C alone; while *P. callosum* Sanderae and *P. Lawrenceanum* Hyeaunum are carrying the factor P alone (or vice versa), as the following table, comprising all the results known to me, shows:—

TABLE A.

- 1, *P. insigne* Sanderae (C) × *P. insigne* Sanderae (C) gives albinos (CC).
- 2, *P. callosum* Sanderae (P) × *P. callosum* Sanderae (P) gives albinos (PP).
- 3, *P. Lawrenceanum* Hyeaunum (P) × *P. Lawrenceanum* Hyeaunum (P) gives albinos (PP).
- 4, *P. Lawrenceanum* Hyeaunum (P) × *P. callosum* Sanderae (P) gives albinos (PP).
- 5, *P. callosum* Sanderae (P) × *P. insigne* Sanderae (C) gives coloured hybrids (CP).
- 6, *P. callosum* Sanderae (P) × *P. bellatulum* album (C) gives coloured hybrids (CP).
- 7, *P. bellatulum* album (C) × *P. Lawrenceanum* Hyeaunum (P) gives coloured hybrids (CP).

The next table gives the remaining possible matings between the albinos concerned, together with the expected results:—

TABLE B.

- 1, *P. bellatulum* album (C) × *P. bellatulum* album (C) should give albinos (CC).
- 2, *P. bellatulum* album (C) × *P. insigne* Sanderae (C) should give albinos (CC).
- 3, *P. insigne* Sanderae (C) × *P. Lawrenceanum* Hyeaunum (P) should give coloured hybrids (CP).

Future results will show how far the above conception, based on Mendel's Law, is correct. If Mr. Chapman thinks well to self the coloured hybrids that he obtained from two albinos, he may expect to get, on the average, nine coloured forms to seven albinos.

Green-flowered Primula sinensis.—Mr. A. W. Sutton showed a plant of Chinese *Primula sinensis* with green flowers, arising apparently from chlorosis of the corolla. The seed had been sown in 1904 and onwards, and had each year bred true until this plant had appeared among the seedlings raised last year. Only once before had Mr. Sutton seen a similar thing, and that was in 1902 when the same kind of sport occurred in another stock of double white *P. sinensis*, but in that case the flowers were not so well developed. The pollen of this plant appears perfect, and possibly seeds may be obtained from the plant.

Colour Sports in Boronia and Erica.—Mr. H. J. Veitch showed a plant of the albino form of *Boronia megastigma*, a portion of one branch of which bore flowers of the normal colour, purplish brown, thus reverting to the type from which the sport arose. From Mr. W. Earp, of Bayham Abbey Gardens, came a spike of an *Erica* (sp?) which last year had borne white flowers only, but every flower this year was of a pinkish colour. Some members of the committee thought that possibly the flowers in the previous year had been caused to open in the dark.

Orocus with Parts in Fives.—From Mr. H. J. Elwes, F.R.S., came a *Orocus* flower having ten perianth segments in two whorls, five stamens alternate with the outer perianth pieces, but a six branched style.

Curious Mushroom.—Mr. H. Harris, of Denne Park Gardens, Horsham, sent a Mushroom having a second complete but inverted Mushroom attached to the pileus. The two had evidently become grafted together through contact in the early stages of growth, and the one had carried the other up as its stalk lengthened, wrenching it away from the mycelium which gave it origin, the water, &c., necessary for growth of the inverted Mushroom having been carried through the tissues of the one still attached to its mycelium.

"Canker" caused by Monilia.—Mr. Dunlop, of Armaghmore, sent a branch of Apple Lord Derby with cracked bark, giving it the appearance of incipient canker. Inspection revealed the greyish sclerotia of *Monilia fructigena* in the cracks, and Mr. Massee said that this fungus, which is perennial in the tissues, forms sclerotia beneath the bark, causing the latter to be raised and to crack. Spores are formed on these sclerotia, and the disease spreads thence to the young leaves, shoots, flowers, and fruits.

Begonia Rust, etc.—Mr. R. H. Curtis sent leaves of *Begonia Gloire de Lorraine* with rusty spots and markings on the leaves due to the attack of the *Begonia* mite. This pest is difficult to eradicate, but constant vigilance and fumigation whenever necessary will usually keep it under. A good wash for dipping plants attacked by mites is made by kneading a handful of soft soap with a quantity (indefinite) of flowers of sulphur and dissolving the whole in one and one-half gallons of water, but even this, probably the most deadly wash for mites, and at the same time harmless so far as the plants are concerned, is not always efficient in killing the eggs of the mite.

Young Gardeners' Domain.

. The prize is awarded to Mr. H. Lazell for his notes hereunder:—

The Herbaceous Calceolaria.

A group of this popular greenhouse plant makes such a brilliant display that I think a few hints as to cultivation would not be out of place. Obtain the seed of a good strain from some reliable firm, and sow at the end of July or early in August in well drained pans filled with fine soil, half of which should be composed of sand. When prepared give a good watering with a fine-rosed can. Let the pan stand for about an hour to drain, then sow the seed evenly and thinly; but as the seed is so small it should not be covered. Place the pan in a cold frame and cover with a sheet of glass, over which a sheet of paper should be placed to exclude light. As soon as the seedlings appear they should be exposed to the light, taking care to keep them well shaded from exposure to the sun. When the seedlings are large enough to handle, prick off into pans prepared as for seed, and grow on in a similar position. When the seedlings have made a few leaves place singly into small pots. Never allow the plants to become pot-bound or the foliage will be stunted and yellow. The secret of success is to keep them growing without a check at all times. As soon as the young plants are nicely rooted pot them carefully into 5in pots, using a compost of two parts good fibrous loam, one part leaf mould, half part well rotted manure, with a good sprinkling of sand to keep the whole porous. If the loam is of a heavy nature half a part peat may be used with advantage. Pay careful attention to the watering. Great advantage is gained by keeping their surroundings cool and moist. Keep a sharp look-out for insects, and gently fumigate at their first appearance. When the roots appear at the drainage-hole pot them into 8in pots for flowering, using compost as advised for previous potting, with the addition of a sprinkling of soot. Some gardeners prefer bonemeal to rotted manure; at this potting weak liquid manure should be given once a week when the pots are filled with roots. As the weather becomes frosty, remove the plants to a position close to the glass in a house where the temperature is not allowed to rise above 50deg. Carefully stake out the flower stems as they appear, then a grand sight will be the result.—H. LAZELL.

The Rose.

So much has been said concerning the Rose by learned men that it is difficult to understand why anyone should say he is unable to cultivate this, the national flower. In many cases I can attribute the cause to lack of energy, and perhaps laziness. In short, if one desires to have Roses, that can only be done by paying attention to them. It is not too late yet to plant; but one must have the right clay and well-drained soil. If he does not fortunately possess this, then let him get it from a pasture and also from the roadside, where good loam and scrapings can be had. A trench is opened, and the mixture of loam and scrapings is laid in to the depth of three to four inches. Upon this place a layer of manure, and again a little fine soil, and on this plant the Rose. Place some fine soil over the root; and afterwards refill the remainder of the trench, taking care to plant the graft of the plant one inch under the level of the soil. Tread firmly, and stake if necessary. Nothing further is required till pruning, a month hence, and this is a subject which to me appears to be a secondary consideration. The main point is to cut down to the lowest eye of every well-ripened shoot.—JOHN CONNELL, Prospect Gardens, Newton Mearns, N.B.

A Christmas Day Ramble.

As illustrating the mildness of the season in the Isle of Wight, the following facts may be interesting to some of the readers of the *Journal*. When walking through the outskirts of Ryde last Christmas day, one could not help noticing the appearance of several villa gardens. Instead of the bare flower beds usually seen at that time of year, quite a number of the summer occupants were still making a display sufficiently worthy to warrant their retention. Chrysanthemums, chiefly white and yellow varieties, and white Marguerites seemed to be in friendly rivalry as to which could make the best display; while a combination of white Marguerites and Salvias Glory of Zurich still retained a considerable amount of beauty. In one garden quite a handful of Pentstemons could have been gathered, and in another Pansies in bloom, and also some Fuchsias. A good show of Antirrhinums was the chief feature of a second garden. They were planted as a carpeting for a bed of standard Roses, and some of the spikes were really good. Several good specimens of Cytisus racemosus were noted, with their yellow racemes half developed; three large plants were growing within fifty yards of the sea. Several of the house

fronts were adorned with *Jasminum nudiflorum* flowering profusely, and amongst other things noticed were several bushes of a pink variety of Monthly Rose; a 10ft high specimen of *Berberis Darwini*, the top of which was a mass of orange coloured blossoms; a well-flowered bush of *Veronica Andersoni*, and a grandly berried specimen of *Pyracantha*.—H.E.D. [We are sorry that this letter has remained so long overlooked.—Ed.]

Three Common Hardy Flowering Shrubs.

Whether hardy flowers are produced on shrub or plant, they are never more esteemed than when they are scarce, and so it is that those that open in the middle of the winter seem doubly attractive. Scarcity of flower is the reason for their being esteemed, and were it not for their winter flowering habits, probably they would not be valued as much as they generally are. I suppose my foremost should be the Winter Sweet, a charming popular name for *Chimonanthus fragrans*. It has fragrant, grey-brown blooms, which are more than welcome, and scent the surrounding air with fragrance. The subject of my essay is grown on a wall facing South, and this is the best position for it, for there it seems to thrive better than as a bush in the open, while its blossoms have some protection from inclement weather. It is a shrub that the smallest garden can ill afford to be without, and will, under ordinary treatment, thrive in any garden soil. The winter-flowering Jessamine (*Jasminum nudiflorum*) is an ideal plant for covering a fence or railing. I once saw this shrub placed to advantage. It was in a hole in a wild garden, about 3ft deep, in which was placed old grubbed-up pollards, the soil adhering to them in most cases, and placed in the most "rustic" position possible. This *Jasminum* was planted on the sides and upon the chunks, and the effect was beautiful, for while in summer its shining foliage was splendid, hiding the bare wood beneath, its graceful and bright yellow blossoms made a most welcome sheet of colour in winter. *Lonicera fragrantissima* is a third, with the whitish flowers freely produced, and they scent the surrounding air beautifully. The flowers are not quite so conspicuous as one might wish, but are esteemed for their fragrance. An ideal position would be the shrubbery, clinging to an old dead tree; there it is seen at its best. The actual time of flowering of these shrubs depends largely upon the weather. Sharp frosts and keen winds retard the development of their blooms.—H. STEVENS, Guildford.

Seed-sowing.

The propagation of plants by seeds is such a well-known method that it may seem out of place to write about it. Still, the time for general seed sowing is almost upon us, so a few words may be useful. The first item to consider is the receptacle in which to sow the seeds. This, of course, will vary in size, according to the quantity of seed to be sown, but in all cases it is best to use something that will allow the sowing of sufficient seed thinly. Pans are the best articles, but as these are not over plentiful in most places, boxes have to be resorted to for large quantities, and pots for the smaller lots. The preparation of the pans is an extremely important item, and one that is often done in too great a hurry. In the case of pans and pots a fair sized piece of crock should be placed over each hole, and then a good layer of smaller crocks put in the bottom, but on no account should the pieces of crock be less than three-eighths of an inch square. All the dust and small pieces can easily be got out by putting through a riddle.

In the case of boxes, any holes or cracks in the bottom should be covered over with pieces of crock, and smaller crocks put in the same as the pans. In all three cases the crocks should be covered over by a layer of decayed leaves. In a good many cases turf is used for this purpose, but I think that leaves are preferable, as they pull to pieces much easier when lifting the seedlings, and so cause less injury to the roots. All seeds do best in a fairly light soil, as the young roots can work their way much easier into a light porous compost. A mixture of loam and leaf soil, with a sufficient amount of sand added to make it porous, is, perhaps, the best. Old potting soil is useful for sowing seeds in, adding a little of any of the above to bring it to the required texture. The soil should not be made too fine, as this is often the cause of "caking." If put through a half inch riddle it will be fine enough. Fill the pots to within three-quarters of an inch of the top, making the soil fairly firm. The surface may be made even by the use of a piece of board or the bottom of a pot. Sow the seed thinly, and in the case of extra special sorts it is best to empty the seed into the palm of the hand and sprinkle it out with the finger and thumb, rather than shake it out of the mouth of the packet. Cover the seeds lightly with sandy soil, and if very fine seed has been sown the soil should be put through a fine sieve. Place the pans into the required temperature, and cover over with pieces of glass, placing a piece of paper over the lot. They should not be allowed to get dry, and as soon as the seedlings appear should be taken from under the paper and placed near the glass. As soon as they are large enough to handle, it is best to prick off into other pans or boxes.—T. W. L.



Fruit Culture Under Glass.

PINEAPPLES.—The fruiting plants of the Queen type, started early in the year, will now require liberal treatment as regards food, heat, and moisture, as the strongest of the plants will have made good progress. At the same time, whilst any of the plants are in blossom, a moderately dry atmosphere must be maintained. The night temperature of the house should be about 70deg, with a liberal rise during the day; and as soon as the flowering period is past the house should be kept much damper—paths, beds, and other parts being kept moist. At the time of closing (which should be early) lightly spray overhead with tepid water, and when any of the plants require water use it in a tepid state and give Peruvian guano alternatively. Care should be taken that the bottom heat is kept up. If hot water is used a regular heat is more readily maintained, but the plants dry quickly.

SUCCESSIONS.—Potting will now be general, and for these plants 8in pots will be suitable, unless any of the plants are strong and show signs of fruiting, when a larger shift should be given. The soil at potting ought to be sufficiently dry, so that the rammer can be used freely. The soil should be a good fibrous loam with some bonemeal and a little soot, and some fine charcoal added if the loam is of a heavy nature. Place the best plants at the warmest end of the house, and from this date give a little more warmth, say 5deg to 10deg; but the minimum at night 60deg to 65deg. After the repotting, water sparingly till the roots are working freely, and spray the plants lightly with the syringe in favourable weather, closing early.

EARLY MELONS.—The earliest plants should now have made sufficient progress to show which fruits are taking the lead, and with a restricted root-run it is safe to feed; but do not be too liberal at the start. Lately the grower will have had a difficult task to ventilate, and more fire heat will have been required. This creates a dry atmosphere, and brings red spider and other pests, so that whenever possible it is advisable to increase the moisture. With plants in pits it is a good plan to cover the glass at night. This saves hard firing. It is well with the early fruiters to crop lightly. If possible, secure the first fruits that set, and by doing so much time is saved; also allow a little more leaf growth beyond the fruit. This assists in the swelling, and with shallow borders give a top-dressing as soon as sufficient fruits are secured. This may be of a richer nature than the soil in the border. Plants fruiting in pots will take more food and moisture.

PLANTS IN FRAMES.—Years ago, many of our best Melon growers grew their Melons in ordinary frames, and excellent results followed by timely attention to details. I do not advise making a too early start, but seed sown during March, in small pots, will furnish plants a month hence, and at that date there will be a good amount of sun to assist growth. If manure is the heating agency, this should be prepared in advance. In frames, too much root-run causes rank growth and few fruits. To avoid this, I have placed slates on the manure, or have sunk large pots to plant in. The soil should not be rich at the start, and should be made as firm as possible.—G. W., Brentford.

The Flower Garden.

CALCEOLARIAS.—The bedding varieties are ready for removal from the cutting boxes or pans. There are two or three methods of treatment which may be pursued, namely, potting off singly in 4in pots, transfer them to larger boxes, or plant out in a cold frame. The latter is the one I would recommend. Make up a bed of three parts loam and one part leaf mould and well decayed manure. Set out the young plants 6in apart, and with due care as to watering, stopping, &c., good material will be available for planting out the beginning of May. Pentstemons and Gazanias may be treated in a similar way.

EARLY-FLOWERING CHRYSANTHEMUMS.—The introduction of new and improved varieties during the last few years has made these plants wonderfully popular in autumn for garden decoration, and to afford a supply of cut flowers. To obtain dwarf sturdy plants March is a good month to insert the cuttings. Plenty should now be available on the stools lifted and stored in a cold frame during the winter. These may be inserted in shallow boxes of sandy soil, and placed in a close unheated frame. When well rooted remove the points of the shoots. The beginning of May plant them in the reserve

garden, from which they may be transferred to fill vacant beds or gaps in the flower borders, where such plants as Canterbury Bells, Sweet Williams, and early-flowering annuals are past. The singles in this section of Chrysanthemums have received especial attention from the hybridist of recent years.

SOWING SEEDS.—To obtain plants of *Violas* and *Pansies* for flowering in succession to those raised last summer, seeds may be sown at the present time. To raise the seedlings quicker than is possible outside the seeds should be sown in shallow boxes, and placed in a slightly heated frame. A sowing of *Polyanthus* seeds may also be made in March, giving them similar treatment. The clumps resulting from this sowing will be much larger, and produce more flowers next spring than those raised in the open ground from seeds sown in May.

BORDER CARNATIONS.—It is time now to think about planting the layers potted up last autumn, and wintered in cold frames. Remove the lights from the frames for a week previous to planting out, or stand them in a sheltered position. Fork a little wood ashes into the beds before planting. Loosen the soil with a hoe between the plants which have been growing in the beds all the winter. Dust the plants with soot, or stretch black thread over them to keep off the sparrows.

GRASS EDGES.—These should be cut once a year with an edging knife, spring being the best time. The edges will then only require clipping during the summer to keep them tidy.

GENERAL REMINDERS.—Place the roots of *Salvia patens* in a warm house to obtain cuttings, treating them in a similar manner to *Dahlia* tubers. The plants of border Carnations can now be safely planted out in the beds, having been wintered in a cold frame. A sowing of Sweet Peas may be made in the open border to succeed those sown in pots in frames. Hoe Tulip, Narcissus, and Hyacinth beds when the young growths are well above the ground.—A. O., Kew, Surrey.

The Kitchen Garden.

PARSNIPS AND CARROTS.—It is now time these were sown. The soil was, of course, prepared some time since by trenching or being deeply worked. The Parsnips can only be of the best on deep soil. But good straight roots can be grown by making holes with an iron bar where the soil is shallow, and filling in with rich light soil. Three or four sound seeds are sown in this soil, to be thinned to one in due course. An early shorthorn Carrot should be sown on an early border.

HERBS.—March is a good month for sowing seeds of the various kinds of herbs; also for making new plantations of such kinds as Thyme, Sage, Mint, Tarragon, Margoram, Horehound, and such like useful herbs. All these can also be raised from seed. The best way is to sow in boxes and place in a mild hotbed, from which all rank steam has passed off. Seed of Thyme is perhaps the most difficult to raise, but with ordinary care this will give very good results.

BRUSSELS SPROUTS AND CAULIFLOWER.—Sowings of these should now be made outside on a warm border, to follow those raised in boxes some time since. Autumn Giant and other Michaelmas and Christmas varieties should be sown without delay. All such seeds which are sown outside should be coated with red lead to prevent the birds and mice destroying them.

PEAS.—Other sowings should be made every ten days or a fortnight to keep up a succession. Midseason kinds may also be sown. These should also be coated with the red lead to protect them from the depredation of mice.

SPINACH.—The Spinach which was advised to be raised in pots should be carefully attended to. Thin to a couple or three plants to each pot, and see that the soil does not become dry. Encourage growth by damping the plants over on warm days, and plant out at the earliest possible date, bearing in mind our uncertain climate. A few Fir boughs placed alongside the plants will afford a great deal of shelter.

SEAKALE AND RHUBARB.—New plantations of these may now be made in deeply prepared soil. Jerusalem Artichokes can be planted.

SHALLOTS.—These should be planted forthwith. Some times at this time of year birds are very troublesome among these. The dead tops provide useful material for nesting, consequently many of the bulbs are torn from the soil. They should, therefore, be planted as firmly as possible. I think the rooks are responsible for the mischief.

RADISHES.—A little seed can be frequently sown in frames to provide tender roots. These may be sown with Potatoes, Beans, Carrots, or any such crops grown in frames, as they come into use long before they will do harm to the permanent crops.—A. T., Cirencester.



All Correspondence relating to editorial matters should be directed to "THE EDITOR," 12, MITRE COURT CHAMBERS, FLEET STREET, LONDON, E.C. Persons sending manuscript or photographs, when not specially requested by the editor, and making no demand for remuneration, are presumed to solicit publication without payment. In order that no misunderstanding may arise, and in order to secure the return of their contributions, contributors should state the fact that they expect remuneration, and in all cases, even when contributing voluntarily, correspondents should enclose a stamped envelope if they expect their enclosure to be returned.

INSECT TO NAME (W. H. S.).—The "insects" are Vine weevils (*Otiorhynchus scabrosus*), which are destructive to young fern fronds, as well as to the buds and growths of Vines. They feed by night, and must be searched for then by the aid of a light.

PLANTING ASPARAGUS BEDS (X. Y. Z.).—The roots from a neighbouring garden that have been productive for a number of years are only fit to be taken up and forced if removed at all, and afterwards thrown away. One or at most two-year-old plants are proper for planting a new bed, planting them when they are commencing to grow.

MANAGEMENT OF LIGHT SOIL (W. M.).—As the soil is poor as well as light, and is 18in deep, we should not bring to the surface any of the sandy gravel, nor should we loosen it if the water drains away freely. We should not apply manure in the autumn, but reserve it until the spring, forking a portion of it in just before the crops are sown and planted, applying the remainder as a surface dressing. Fertilisers applied during showery weather in summer would greatly benefit the crops. Lose no opportunity of obtaining stronger soil, such as ditch and roadside trimmings, for such additions will prove very advantageous, both by gradually deepening the soil and improving its texture.

CAULIFLOWER AND BROCCOLI (F. W.).—There is no clearly defined line between Cauliflower and Broccoli, as both are varieties of *Brassica oleracea*, as are also the other vegetables which you name. An accepted distinction between Cauliflower and Broccoli is that the former is more tender than the latter, and may be sown and come to maturity for culinary purposes the same season. Broccoli requiring a much longer time to produce heads has to grow the whole of one season, pass the winter, and arrive in a fit state for use early the following year. The head of the Cauliflower may be described as a concrete form of the inflorescence of *Brassica oleracea* var. *botrytis*.

SCALE INSECTS (J. P.).—The following is from the Woburn Report:—Dissolve 1½lb of softsoap in 1 gallon of water; this will either require several days' standing, or else some heating; churn up with it, by means of a syringe, 2 gallons of White Rose paraffin oil, when thoroughly emulsified, pour the emulsion with continual stirring into 30 gallons of water in which 6½lb of caustic soda have been previously dissolved, rain water should be used, if possible, and the mixture is the easier made if the water is warm. The above wash should be applied with a syringe or sprayer, as soon as it is mixed, and it is suitable for all kinds of fruit trees, but may only be applied in winter, then it will cleanse the trees from moss, and destroy the eggs of scale insects, workmen using the wash should wear india-rubber gloves, and should be careful not to get the wash in their faces.

REMOVING VINES (J. R. C.).—With the consent of the landlord the Vines can be removed with safety provided due care is exercised in taking them up, preventing the roots drying in transit, and replanting. Commence by digging a trench at the same distance from the base of the stems as the rods are in length. The trench should be wide enough to afford room for working, and deep enough to be below the roots. Sever the roots at the trench, and working under them and upwards with steel forks; liberate the soil from them, throwing it back with shovels. Keep the roots as moist as possible, and before planting cut off any injured portions. Plant carefully in good loam, covering the roots 5in deep, and mulch the surface of the border with manure. Allow the Vines to start naturally, applying no fire heat, and crop very lightly until they are established and have made strong growth.

GERARDE (T. L.).—John Gerarde was born at Nantwich, Cheshire, in 1545, in the reign of Henry VIII. He died 1612; so that he lived in five reigns—Henry VIII., Edward VI., Mary, Elizabeth, and James I.

CAMPANULA PERSICIFOLIA CORONATA (Antrim).—We believe the variety is very similar to, if not identical with, the old double variety. The list referred to includes the names of plants that are specially figured and described.

APPLE SUCKER (T. R.).—Spray from the middle of April till the middle of May with the following mixture:—6lb of soft-soap, 8lb of extract of quassia chips, 100 gallons of water. Also spray in winter with the wash recommended for scale insects.

POTATO CULTURE (Tyro).—The weight you name has never been produced by planting one whole Potato and leaving it to grow and produce a crop; but by planting a large tuber having a great number of eyes in leaf soil in a frame, and making cuttings of the growths as fast as they are produced, striking them in heat, growing the plants in pots under glass, hardening them off the same as Dahlias are treated, and planting them in specially prepared soil, the weight mentioned may possibly have been attained.

LIQUID MANURE (Ignorance).—Unless a considerable amount of water finds its way into the stable tank the liquid will be very powerful, and should be diluted with six times its volume of water before applying to the crops. If a portion of water, such as that used in washing down the stable, drains into the tank, a proportionately less amount will require to be added when the liquid is drawn from the tank and used; it is, however, safe to err on the right side, and apply the stimulant rather weak than too strong. It is a valuable application for all kinds of vegetable crops, and may with advantage be applied to Vine borders in summer if the Vines need such support. If you throw some chloride of lime into the tank in summer the contents will be rendered less offensive.

DWARF PLANTS FOR CARPET BEDDING (D. C.).—The following may be raised from seed:—*Stellaria graminea aurea*, *Sempervivum tabuleforme*, *Pyrethrum Golden Feather*, *P. aureum laciniatum*, *Echeveria plauca metallica*, *E. secunda glauca*, *E. pumila*, *E. secunda*, *E. metallica*, *Cerastium tomentosum*, *Lobelia pumila grandiflora*, *L. pumila magnifica*, *Sedum caeruleum*; and of plants increased by cuttings:—*Alternanthera amabilis*, *amœna spectabilis*, *paronychioides*, *versicolor grandis*, *magnifica*; *Antennaria tomentosa*, *Gnaphalium lanatum*, *Iresine Lindeni*, *I. Herbsti*, *Kleinia repens*, *Leucophyton Browni*, *Mentha Pulegium gibraltarica*, *Pachyphyton bracteatum*, *Sedum acre variegata*, *S. acre elegans*, *S. glaucum*, *S. lividum*, *Sempervivum montanum*, *S. californicum*, *Mesembryanthemum cordifolium variegatum*, and many other succulents.

NAMES OF PLANTS.—Correspondents whose queries are unanswered in the present issue are respectfully requested to consult the following number. (S. J.).—1, *Galanthus Ikarie*; 2, *Hamamelis arborea*; 3, *Chimonanthus fragrans*; 4, *Lonicera Standishi*. (A. J. H.).—1, *Primula Forbesi*; 2, *P. obconica* (a good variety). (M. M.).—1, *Adiantum scutum*. (Orchidist).—The specimens were bruised and far past. (See next week.)

Trade and Miscellaneous Notes.

Ransomes' Lawn Mowers.

The unpretentious little booklet containing illustrations of their lawn-mowers, and issued by Messrs. Ransomes, Sims and Jefferies, Ltd., Orwell Works, Ipswich, is far more replete than anyone who looked only from the outside would imagine. Herein appear descriptions of "Automaton minor," specially recommended for putting greens; also the "Empire" and "Empire major," together with "Anglo-Paris," a fine light machine for small lawns; and the "Lion," of the same general design, but lighter and cheaper. There are also selections of pony, horse, and motor mowers, and "Ransomes" are well ahead with the latter.

Ellison's Tropæolums

In sending his seed and bulb catalogue for 1908, Mr. H. N. Ellison, 5 and 7, Bull Street, West Bromwich, Staffs, draws attention to his offer of *Tropæolum tuberosum*, extra strong tubers at three for ninepence.

A Carnation Catalogue.

Mr. W. H. Page, Tangley Nurseries, Hampton, Middlesex, whose superior displays of perpetual-flowering Carnation blooms at the R.H.S. shows have been frequently alluded to in our columns, has issued one of the best Carnation catalogues we have seen. Nearly every page is illustrated, and photographs of the long housefuls of these flowers at his nurseries also appear, and are most interesting. Mr. Page grows nothing but the best, and his list is therefore valued and welcome.



The Shire Horse Show.

The annual show at Islington has once more come and gone, and in almost every respect has been highly successful. For soundness and quality it has probably never been surpassed, and the prices at the sale ring sound very satisfactory. Yet the prices recorded in the papers are only the best; we hear nothing of the low bids for animals withdrawn. We have read a list of prices secured for thirty-two stallions, all running into three figures. There were over 350 offered for sale. How many were sold, and what would they have fetched at an open sale with no reserve?

We entirely agreed with the views of a prominent daily paper which, in discussing the show, pointed out the danger of making it a convenient auction mart rather than a show of all that is good. We heard a breeder and good judge remark that many three-year-old stallions at the show were no bigger than good yearlings. These horses were simply entered for sale, and it seems more necessary than ever that a high upset price should be fixed by the society for every animal entered for sale, and that the commission on that reserve price should be paid, and the society benefit thereby.

No doubt many animals would be sold privately after the auction, but considering the large number entered, 142 seems to be a very small portion to be publicly sold, including stallions, mares, and geldings.

There is another thing which we must mention, and we do so in no spirit of cavilling. It is the fact that the chief prizes are more inclined every year to fall into the hands of people of nobility and wealth, and also into the hands of professional exhibitors. It is almost impossible to find the name of a tenant farmer who is not "in the trade." It seems that money is usually successful in tempting the fortunate breeder of an exceptional foal to sell it before its true value is known. If we go through the prize lists we find a few new names amongst the yearling colts and fillies, but when we get to the four and five years' old, the names of the breeders have been dropped, and it is money that makes the horse and mare to go round the show ring.

The R.A.S. of England.

The financial report of the society was read at the last monthly meeting, and delightful reading it is. Useful profits of £5,473 on Harewood House, and £5,726 on Park Royal, as well as the far more important item of a profit of £7,056 from the Lincoln Show, have helped to swell the capital of the society from £7,045 to £29,267, net increase of no less than £22,222.

How satisfactory all this must be to the members who stuck to their membership through evil and good report, and did so much in bringing about a return to the old state of things. It is a well-worn saying that good often comes from evil, and we are sure that the Royal Agricultural Society of England has emerged from the troubles and mistakes of the early years of the twentieth century, with greater popularity, greater general support (and especially from farmers, who surely are the people the society should reach), and every promise of success in the future. We have repeatedly advocated in this column a return to the touring system, for the visit of the Royal to any provincial town or city is like that of a missionary. If you wish to convert people to an interest in anything, be it religious, political, social, or agricultural, you must go down amongst them. They will not care to go to London to see a Royal show, but bring it into the country and within easy reach, and they will go right enough. The people from Yorkshire, Notts, Derby, Leicester, Cambridge, &c., all went to Lincoln last year, partly for the show, partly to get a glimpse of Lincolnshire farming. This year Lincoln men will join with their Notts and Yorkshire neighbours in going North, to see how things are in Durham and Northumberland, and meet old friends and new at what we hope may prove another record show.

Churning.

A few weeks ago our attention was attracted by an article in the "Yorkshire Post" (presumably written by Professor Long), with some suggestions to dairy farmers. The article had special reference to some statements of Professor McKay, of the Agricultural College, Iowa, as to newly-acquired knowledge of the action of cream in churning. Every dairy-woman knows how very varied is the time of churning. Sometimes butter

comes in fifteen minutes, sometimes in an hour or more. Professor McKay holds that cream gathers by the fat globules striking against each other, but when cream is churned at a low temperature the fat globules are so hardened that they may strike each other many times before it becomes possible for them to adhere together. Professor McKay only deals with cream which is raised in panchoons or similar vessels, and he thinks that careless skimming is often responsible for difficulty in churning. Too much milk being skimmed off with the cream acts as a cushion and prevents the globules from uniting rapidly. The percentage of fat in cream may vary from 20 to 60, but Professor McKay finds from experience that 35 per cent. produces as satisfactory results as anything higher. There appear to be three things to avoid—thin poor cream, cream with too much milk amongst it, and too low a temperature. These troubles are avoided by using a separator, temperature then being the only point to attend to. Unfortunately, separators are not very applicable to very small dairies, but the few points dealt with may prove still useful.

Work on the Home Farm.

We are doing practically nothing. Frost, snow, rain and wind, as we have had it lately, would depress the spirits of a Mark Tapley. Although we have always avoided meeting troubles half way, no one who has large breadths of barley to sow this month can be anything but anxious at the present time, and excusable so. The rainfall and snowfall during the week must have been very heavy, and the springs and water-butts are overflowing. We want some equinoctial gales without rainfall, and we should soon be again in full work.

The difficulty lies in avoiding doing harm. Ploughing may be done advisedly under some circumstances; under others ploughing it would be worse than useless. We are leaving the land severely alone, except ploughing behind the sheep, and re-ploughing a plot of fallow which was partly worked, and had run into a sea of mud. This latter ploughing will prepare the land for a further dressing, and will do no harm, at any rate. We have often advocated the use of the plough, especially as a preparation for turnips. We have repeatedly, when ploughing in May a piece of fallows which was already clean and ready for sowing, left a breadth unploughed, and without any exception that breadth could be easily found on account of its great inferiority to the rest of the crop.

The turnip folds are in a dreadful mess, and we have to take the sheep off to grass whenever possible. We keep selling a few at satisfactory prices, and if weather would permit washing and clipping, we should soon clear out, for we like to keep the wool at home. There is always amusement, if not profit, in having a clip of wool to sell in July when there is no other excuse for going to market.

The lambing proceeds briskly. Ewes, as a rule, are healthy, but here and there are very serious losses. Lambs are very plentiful, but the wet weather is adverse to the prospects of rearing them. Young lambs with a good mother can bear a great deal of dry cold; but cold rain and snow quickly reduce their numbers.

How valuable a good supply of hurdles is at lambing time. In bad weather half a score of thatched hurdles will provide a splendid shelter for quite a large number of ewes and their young lambs. The shelter can be quickly transferred from one part of a field to another, so as to provide the maximum amount of protection.

The pig trade is very slack: all sellers and no buyers at present. Perhaps we may see a revival in the autumn; perhaps sooner, if grain prices continue to fall.

Foot and Mouth Disease.—Imported Hay and Straw.

Our readers were made acquainted in last week's issue with the outbreak of foot-and-mouth disease at Edinburgh. Imported hay or straw was thought to have led to the outbreak. The Board of Agriculture and Fisheries have therefore made an Order under the Diseases of Animals Acts, prohibiting the landing in Great Britain of hay and straw from certain scheduled countries. The Order, in effect, applies to hay and straw brought from a port or place in the Continent of Europe (except Norway, Sweden, and Denmark), or in the Argentine Republic, Brazil, Paraguay, and Uruguay. The Order came into operation on Monday, the 9th inst., and does not apply (a) to hay or straw which at the time of importation is being used for packing merchandise, (b) to manufactured straw not intended for use as fodder or litter for animals, (c) to hay or straw which is authorised to be landed for use otherwise than as fodder or litter for animals by a licence granted by an inspector of the board, and (d) to hay or straw placed on board a vessel before the commencement of the Order for consignment to Great Britain. The Department of Agriculture and Technical Instruction for Ireland have made a similar Order as regards Ireland. Copies of the Order, relating to Great Britain, can be obtained gratuitously on application to the Board, at 4, Whitehall Place, London, S.W.

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Journal of Horticulture.

THURSDAY, MARCH 19, 1908.

Tariff Reform.



OUR readers quite understand the application of Protection in a gardening sense, where it is without doubt a very good and often essential thing. But we have all been exercised by another use of the word, this time in the larger arena embraced by politics. Once upon a time the gardening journal that dabbled in politics was regarded as an anomaly; but since commercial horticulture, in the form of market gardening and fruit growing, as well as the profession of gardening at large, may have something to lose or something to gain by any change in the fiscal policy of this country, it is surely wise and even necessary to enter upon a discussion of the probabilities.

In the supplement which we present with this issue, it will be observed that two well-known commercial horticulturists each state, in short letters, their respective points of view of the question, Would Protection benefit the nurseryman and market gardener? Mr. Bunyard has no hesitation in recommending a 10 per cent. impost upon raw produce entering our ports, especially such raw material as can be raised in our own land. On the other hand, Mr. Lobjoit, who is one of the most shrewd, most successful, and best known of Middlesex market gardeners, cogently points out that increased prices upon food stuffs might mean less buying, and certainly the market gardener himself would have to pay more for the things he requires in the conduct of his business. The fact seems to be, judging from the voluminous outflow both in speech and writing that has been served to the public mind, that no one can say definitely that Tariff Reform in favour of Protection is good, any more than they can say that it is bad. The question is far too nebulous to be pronounced upon, dictatorially, either way; and it will only be solved by a practical test.

There was much interesting evidence collected and published in the year 1906 by the Tariff Commission by its agricultural

READERS are requested to send notices of Gardening Appointments or Notes of Horticultural Interest, Intimations of Meetings, Queries, and all Articles for Publication, officially to "THE EDITOR," at 12, Mitre Court Chambers, Fleet Street, London, E.C., and to no other person and to no other address.

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committee, some of which we venture to quote, as the evidence was quite impartial. Not a little of it is very encouraging, as showing that the smaller cultures are in a progressive state in Great Britain, especially as concerning fruit. This is a fact that the small holder should lay hold of. One cannot help thinking that a tariff placed against foreign Apples would be an unqualified blessing to the small fruit grower especially. There could surely be everything to gain also, by an impost on fruit trees, Roses, shrubs, and flower bulbs that come to England in large quantities from the Continent. Their production in British soil would, as a matter of course, find employment for rural labourers, and for trained gardeners, who, we have reason to believe, are not by any means scarce. We should be very sorry, however, to think that Protection would induce slovenly cultivation. With all the world as competitors, as we have at present, it has become imperative to adopt scientific cultivation, high class grading, and the most approved market methods. Our growers have, in the main, been forced to their present condition of excellence by the Canadian and Californian orchardists. Had there been no foreign competition there can be no reasonable doubt that things would have remained in their former unsystematised, imperfect state. But intensive cultivation has not yet in England nearly reached the state that is possible under a developed, co-operative system of small-holdings in colonies. For the establishment of a sturdy new race of peasant proprietors in the land—the so-called backbone of a nation, who will have an interest at stake should international disputes arise—is it not vital that they should, in the first instance, be protected? If their interests are thus patronised, it follows that the interests of the landowners and larger market gardeners, nurserymen, and farmers will equally be assured. And if prices for certain necessities of life are raised to the town-dweller, who is the consumer, might we not reasonably suggest that it is about time the struggling countryman was placed on a wages level with his fellow citizen in the town? Why do men and women in their thousands flock to the towns? Not because the country is so unutterably dull, but because the wages in towns are so much more alluring. Reverse this, or equalise matters more, and mark the result. The result does not require to be stated.

It is very difficult to discover the truth as to the state of the market-gardening industry. Expansion was the watchword for twenty years, until a few years ago, but profits are much less than formerly, and as Mr. Joseph Rochford says, growers consequently cannot afford to increase their glass houses. Yet the contributor of our market gardening notes has repeatedly told us of increases in the glass area around London of late. Perhaps this is only a natural expansion to keep pace with the population. Growers certainly suffer from the increasing importations of Tomatoes and Grapes, and latterly, Celery. One is inclined to believe, however, that in these matters the general public benefit more than the growers actually lose.

In discussing the question we cannot overlook the present need of better railway facilities. Unless the producer can get his goods quickly and regularly to market, no amount of Protection would be a permanent benefit. According to the evidence before us, the Midland Railway, as an instance, requires that fruit is to be collected and delivered in two-ton lots. What small grower can expect to keep sending in two-ton lots? If one man does gather fruit from his neighbour, that neighbour may not agree with the choice of the other's market. Jealousies of this kind are always likely to crop up, yet co-operation and better railway facilities must go hand in hand.

The general impression conveyed by the evidence is that market gardening and fruit culture would increase were growers assured of fairly remunerative prices. "At present, home markets may always be flooded by foreign importations of produce, which ought to and can be produced here, where many acres of land out of cultivation are well adapted for fruit and vegetables; the labourer would reap the advantage, and we should not hear so much the cry of 'back to the land,' as labourers would remain on the land, and small holdings would extend, keeping not only the labourers of to-day on the land, but the rising generation. Much land out of cultivation could grow fruit."

It is recognised that imported produce often arrives here at a time when home produce is not on the market, and is also often needed to supplement a short British crop. There should be no delay in delivery, consequent upon a Customs duty, in so perishable a commodity; but the opinion is widely held that imported fruits and vegetables "should bear at least the same tax as home-grown," in order to equalise as far as possible the tax burden of each, and in order that the foreign grower should not be left, entirely untaxed, to secure control of British markets as he often does.

It is realised that almost any change in the British fiscal system would assist British producers to find markets abroad for certain classes of produce. "We can," says a London fruit salesman, "sell in Germany tons of hothouse produce weekly as against pounds in France. The Minister of Finance would not have dared to put a tax of 5s. per kilo on Grapes if we could have retaliated, as the whole 'petite culture' of France looks

to England as the best market." "When we attempted to make business in Paris," says an English merchant, "there were Grapes grown under glass coming into Paris from Belgium. Those were taxed, with the result that they were driven here, and have damaged our growers by thousands a year."

Before the Scientific Committee of the Royal Horticultural Society, held on March 3, Mr. A. W. Sutton read a paper on "Wild Types and Species of Tuber-bearing Solanums," illustrated by lantern slides. In the course of his interesting remarks, Mr. Sutton referred to the impetus given to the search for the wild type from which the Potato has been derived by Lord Cathcart and to Mr. J. G. Baker's work with the group, and related his experiences during the past twenty-five years in cultivating and hybridising the tuber-bearing species of Solanum, *S. tuberosum*, *S. polyadenium*, *S. verrucosum*, *S. Maglia*, *S. etuberosum*, *S. Commersoni*, *S. Ohroni*, and *S. tuberosum* var. *boreale* (= *S. Fendleri*). Whenever any of these have produced fertile seed the type has been reproduced, except in the case of *S. etuberosum*. The last named has apparently never produced fruit in this country until 1906, when a single berry was found. From the seeds it contained a number of plants approaching in appearance the cultivated forms of the Potato have been obtained, and Mr. Sutton suggests that possibly it is from *S. etuberosum* that the cultivated Potato has been wholly or in part derived. If so it is a hopeful sign for the future races of the Potato that no plant of *S. etuberosum* has yet been known to be attacked by the fungus *Phytophthora infestans*. The meeting closed with a hearty vote of thanks to Mr. Sutton, who not only illustrated his lecture with slides, but with numerous specimens of tubers of the wild types and seedlings from *S. etuberosum*, &c.

When we make a calm, reflective survey of the signs and circumstances at present applicable to the body politic, we come to the conclusion that the notable effervescence of energy in its many forms is destructive of the stolid dignity and the beauty of quaintness that marked the men and institutions of older times. Everywhere there is social unrest. It has even penetrated to gardeners. So long as the social reformers are content to hasten slowly, all sane and clear-thinking men will accord them most hearty encouragement; but it is the audacious attempts of the ultra-socialist party to jump the hurdles of conventional procedure that stiffens the back of the vast majority of their English fellow-citizens, and makes them resist.

We are considering, however, not the general public, but that section of it represented by our readers—the gardeners. If we might be allowed to do so we would call attention to the concluding lines of Mr. R. P. Brotherton's letter to the question, Have Scottish gardeners deteriorated? in the present issue. Therein he says—referring to British and Irish gardeners on the whole—"that the literary standing of the present-day gardener compares unfavourably with his predecessor," and he points to the writings of Donald Beaton, Robert Errington, and Robert Fish. The same truth has impressed itself upon us time after time, and we again inquire, What is the reason? Immediately the mind replies that time is nowadays frittered away in a multiplicity of details, and in so much rushing to and fro to exhibitions and elsewhere, that the minds of our (gardening) writers may have less leisure for meditation, study, and preparation. Synchronously, there is also a very apparent flippant and cynical disregard of "style" and quality in articles on gardening, both by the writers and readers of them. Hasty and imperfect preparation is characteristic of very many of the articles that reach us. The most bigoted, or shall we say least compromising, of "practical" men, cannot launch a verdict of impracticability at the suggestions contained in the writings of any of the three men above named. Neither could they call them dull; they were, in fact, bright, piquant, pleasant, and highly packed with thoughts and suggestions. They displayed originality, wide experience, abreast of their times, as well as activity of mind and varied reading.

The pen-picture of the educated gardener, too, deserves attention, especially the attention of the younger gardeners. Whenever we hear outcries (which are so common) for higher wages and better conditions, we think of the street-corner agitator who said, "Brothers, we want our wages rose." We thought, when we heard him, of all the advantages that lie around, which he was free to utilise for his own education and advantage, but which, as he eloquently exemplified, he utterly neglected.

The conclusion of this little homily may be expressed in two questions: Are gardeners to-day equal, socially and educationally, to those of the past? Should they co-operatively agitate for, and do they merit, improved remuneration?

NOTES & NOTICES

The April Carnation Show.

The fourth grand Carnation exhibition of the Winter-flowering Carnation Society will be held on April 1 in the Royal Horticultural Society's hall, Vincent Square, Westminster.

250,000 dollars for Gipsy Moth Fight.

The House Committee on Agriculture, Washington, U.S.A., has voted to increase the appropriation to fight gipsy and browntail moths in New England from \$150,000 to \$250,000.

The Earl of Meath.

At the monthly meeting of the Metropolitan Public Gardens Association, held at 83, Lancaster Gate, W., Sir William Vincent, Bart., vice-chairman, presiding, it was announced that the Honorary Freedom of the Gardeners' Company would be conferred upon the Earl of Meath, as chairman of the association, on the 24th inst., and it was agreed to thank the Company for this recognition of the work of the association and its founder during the past twenty-five years.

Cardiff Gardeners' Society.

The fortnightly meeting of this society was held at the Philharmonic Restaurant on Tuesday, the 3rd inst. Mr. H. R. Farmer, F.R.H.S., presided over a very good attendance. The lecturer was Mr. J. Basham, jun., representative of Bassaleg Gardeners' Society, who lectured upon "Mutual Improvement Societies, their Benefits, and How They Could be Made More Useful." A very fine display of Daffodils and Hyacinths was exhibited, in which Messrs. Malpass and Freeman took equal honours.—R. T. W.

Orchids Under the Hammer.

To make the necessary room for the extensive alterations now in progress in the White City, Old Trafford, in readiness for the season, which will open in May, there was sold by auction a choice collection of orchids, which were formerly the cherished possession of the Manchester Botanical Society. The collection of nearly 300 lots includes specimens of *Vanda*, *Celoglyne*, *Cypripedium insigne*, *Laelia purpurata*, and other kinds, a rare specimen of *Araucaria*, Japanese dwarf Maples, double white Camellias, and a great many other varieties.

Meteorological Prize Competition for Teachers.

The council of the Royal Meteorological Society have considered the reports of the examiners on the essays on "Climate or Weather," which were sent in for this competition, and have made the following awards:—First prize, £5, W. C. Upshall, Broughton, Stockbridge; second prize, £3, Miss A. B. Phillips, 34, Blythe Hill, Catford; third prize, £2, Albert V. Stevenson, St. Paul's School, Sunderland. Extra prizes, £1 each, John Young, Barrock School, by Wick; Henry Collar, Lavender Hill School, Clapham Junction. In addition to the above the following prizes have been awarded for essays sent in by pupil teachers:—First prize, £1, Arnold B. Tinn, 28, Macauley Road, Birkby, Huddersfield; second prize, 10s., Miss D. E. James, Church House, Wokingham.

Burnham Beeches Attacked.

There is a certain rapacious insect, whose scientific name is *Cryptococcus Fagi*, which is doing damage to the Burnham Beeches. At the meeting of the City Corporation on March 12, Mr. George Fraenkel put a question on the subject, and suggested that the famous trees were being seriously injured. Mr. Thomas Gouldeney said the matter had been carefully considered by the Finance Committee, and last year they had consulted the scientific committee of the Royal Horticultural Society. It was not thought probable that the attacks of this insect would be fatal to many of the old trees. Energetic remedial measures were being applied to some of the affected trees, and when the effect of these experiments had been ascertained the committee would be in a position to decide upon future action.

Dreer's Seventieth Anniversary.

Mr. Henry A. Dreer, Inc., Philadelphia, Pa., has taken the opportunity offered by the seventieth anniversary of the establishment of the business to present to his patrons a very fine edition of his annual catalogue. It is not given to every firm to live through seventy years, and naturally this firm is proud of its record. Its history may almost be termed the history of floriculture in America.

School Teachers' Examination.

The Royal Horticultural Society will hold an examination in cottage and allotment gardening on Wednesday, April 29. This examination is intended for, and will be confined to elementary and technical school teachers. Teachers and assistants desiring to sit for the examination should apply at once for a copy of the syllabus to the Secretary, R.H.S., Vincent Square, London, S.W.

R.H.S. Examinations.

Gardeners and others wishing to sit for the society's examination in horticulture to be held on Wednesday, April 8, are requested to send in their names on or before March 28, to the secretary, Royal Horticultural Society, Vincent Square, Westminster, also the name and address of their proposed supervisor, together with postal order for 5s. in payment of entrance fee. The society is willing to hold an examination wherever a magistrate, clergyman, schoolmaster, or other responsible person accustomed to examinations will consent to supervise one on the society's behalf. If any candidate desires to sit in London for this examination the society will make arrangements for him to attend at their hall in Vincent Square, S.W.

Insect Pests of the House.

At the Birmingham University, Mr. Walter E. Collinge delivered a lecture on "Insect Pests of the House," dealing with those insects known as cockroaches and crickets. The "Manchester Courier" continues:—Mr. Collinge remarked that cockroaches were a large group of insects, essentially inhabitants of warm countries. Upwards of a thousand species had been described, the majority of which lived out of doors, their food consisting of living vegetable matter; indeed, in some countries they were regarded as pests of cultivated plants. Though regarded as something loathsome, the cockroach was a most ancient insect, fossil remains occurring in great quantities in the early coal measures, ages before the more specialised forms of insect life, which were common to-day, had appeared. So abundant were these remains that the carboniferous age had been termed the age of cockroaches. At the present time they occurred the wide world over, from the hut of the Laplander to that of the semi-savage. They had been carried from one country to another through the agency of commerce, and have been associated with human dwellings from the earliest times. In this country we had two fairly common species, viz., the Oriental cockroach, the so-called "black-beetle" of Europe, and the American cockroach. In addition, however, to these we occasionally found the German and other species. Curiously, it was very rare to find two domestic species living in the same house. After describing the life-history and a few structural characters, Mr. Collinge pointed out that the domestic species were practically omnivorous, feeding on almost any dead animal matter. Apart from the material consumed, they rendered food nauseous by leaving on all they touched a fetid odour, due to a secretion exuded from the mouth, and also to an oily fluid emitted by the so-called scent glands. By this means they often made living rooms unbearable by attacking carpets, the odour remaining for a considerable time. Of the many insect pests of the house, none was better known than the hearth cricket, and numerous superstitions had gathered round this inharmonious and irritating pest. The chirping song was produced only by the male by the friction of the upper wings over each other; it was supposed to be a love call. A distinguished entomologist had pointed out that if this were so, it evidently betokened, on account of its long continuance, a patient persistence which deserved the highest encomium. In this country it often left the house in summer, spending some months in gardens, hedges, &c., returning with the advent of winter. The cricket was particularly fond of liquids, and might easily be destroyed by placing vessels with beer or other liquids in.

Veteran Horticulturist's Death.

The death is announced of Mr. William Owen, of Greenbank Nurseries, Northwich. The deceased was seventy-four years of age. He specialised in orchids, and his collection became one of the most extensive in the county. His services as a judge at horticultural exhibitions up to a few years ago were in great request.

Kew Bulletin.

Kew Bulletin, appendix II., 1908, contains the additions made to the library of the Royal Gardens, Kew, during the year, 1907. Like the Catalogue, this list is printed on one side of the page, to allow of its being cut up. It is probable that many persons and institutions will make the Kew Catalogue the basis of their own, and will use the lists of additions to supply printed slips for fresh titles.

Street Hawking.

Glasgow magistrates have remitted to a sub-committee the question, brought before them by a deputation representing the Scottish Fruit Trade Association, says the "Glasgow Daily Herald," of the growth of hawking fruit and flowers in the streets, and particularly as to the propriety of licensing such hawkers and securing powers for the inspection and supervision of the fruit and the places wherein it is stored when not exposed for sale.

Croydon Gardeners.

The members of the Croydon Gardeners' M.I.A. met on the 3rd inst. to hear an address on hardy flowering shrubs by Mr. A. E. Thatcher, who has charge of the Aldenham House collection. Mr. M. E. Mills proposed a very hearty vote of thanks to Mr. Thatcher, and this found ready support from the audience. Some good exhibits came from the members, including a basket of *Lachenalia* from Mr. Oxtoby, a *Nephrolepis todiodes* from Mr. P. Chaff, a very fine specimen *Platyserium* from Mr. Mills, and three pots each of *Primulas* and *Cinerarias* from Mr. A. Edwards, all of which received a vote of thanks.

School Gardening.

The new code issued by the Scotch Education Department does not make any striking changes. There are, however, two matters touched which are of some importance. One is in reference to the study of the conditions under which plant life can best be cultivated. For the first time gardening is included among the grant-earning subjects; in other words, a grant may now be obtained by a school which provides a garden, where the pupils can acquire practical instead of text-book knowledge. This departure is connected with an extension of the work of the agricultural colleges.

The Redhill Gardeners.

The Redhill and Reigate gardeners held their fortnightly meeting at St. Matthew's Parish Rooms, Redhill, March 3, Mr. Seaman in the chair. Three new members were elected. A first-class certificate was awarded to Mr. F. Phillips for *Cyclamens*, and another to Mr. Cooper, sen., for *Primula stellata*. Mr. F. Phillips, of The Gardens, Craigendowie, Reigate, gave a very interesting and instructive lecture on "Plants for Exhibition and Their Culture." Several questions were put to the lecturer, which he was well able to answer. Mr. Cross proposed and Mr. Blackwood seconded a very hearty vote of thanks, which was carried.

Death of Mr. Quintin Read.

Many old readers of the *Journal of Horticulture* will learn with regret that Mr. Quintin Read has passed over to the great majority. He died last Thursday, March 12, at Teddington, near Tewkesbury, where he had resided during the past few years since he retired from active service. For many years Mr. Quintin Read was head gardener at Pleasley Vale, near Mansfield, and subsequently he followed Mr. Woodcock as gardener to Sir F. T. Mappin at Thornbury, Sheffield, and a notice of the garden under his charge appeared in this journal some years ago. Thence he went to Whilton Lodge, Daventry, and from there to Worcester, where he was appointed assistant to Mr. James Udale, horticultural lecturer for the county. Until the time of his retirement he filled this position creditably, for he was an experienced gardener of keen observation, and at one time he was a frequent contributor to the pages of this journal, his initials being familiar to readers of twenty years ago.—R. L. C.

Appointment.

Mr. John M'Clean, for the past seven years gardener to the late Colonel Bayly, Ballyarthur, Woodenbridge, Co. Wicklow, as gardener to Mr. Lecky Pike, Kilnock, Tullow, Co. Carlow.

British Gardeners' Association.

A meeting will be held at Carr's Restaurant, 264, Strand, W.C., on Saturday next, March 21, 1908, at 7.30 p.m., to establish a London Branch of the British Gardeners' Association, and to appoint a committee, &c. The chair will be taken by Mr. George Gordon, V.M.H., &c.

Weybridge Horticultural Society.

The March meeting of this society was held on the 10th inst., Mr. Horace J. Wright gave an instructive and interesting lecture on the cultivation of the Strawberry. About sixty members were present, and closely followed Mr. Wright's lecture. Some exceptional exhibits were staged, including *Cineraria superba*, *Primulas*, and *Tulips*. A discussion on the lecture and exhibits brought an excellent meeting to a close.

Weather at Wroxham, Norfolk.

Of late, much wet, with cold north and east winds, has visited this district. The amount of rain, however, was not so great. Saturday last (14th) was perhaps the finest day of the month, though the north wind was chilling and cold in the extreme. On Sunday night there were 5deg of frost, and early on Monday snow began once more to fall rather heavily, and continued during the day. A good deal of it disappeared as it fell. As a result *Crocuses* and other early spring bulbs are later than usual. A week or so ago a friend from Forfarshire was surprised to find our *Crocuses* so late.—D. C.

Weather in Perthshire.

The weather of the first fortnight of March, and particularly that of the week ending the 16th, has been good for the season. On several nights sharp frosts occurred: on the mornings of the 11th, 12th, and 13th respectively, 5deg, 7deg, 9deg were registered, these days, as well as the 14th, being specially fine. The barometer, which was high, fell slightly on Sunday, and the following night was wet. Snow showers fell on Monday morning, but cleared off before midday, and the barometer steadying, seemed to indicate a return of good weather.—B. D., S. Perthshire.

L.C.C. Scholarships.

The London County Council has recently been devoting considerable attention to the establishment of trade scholarships for boys. These scholarships are intended to offer to boys who are about the age of thirteen or fourteen, opportunities of going through courses of technical instruction at polytechnics and technical institutes, with a view to qualifying themselves for some skilled occupation. Scholarships in gardening are offered, tenable at the Royal Botanic Society's School of Gardening in Regent's Park. The above scholarships carry with them free instruction at the technical school, to gether with maintenance grants of £10 for the first year, and £15 for the second or succeeding years. They are confined to boys who reside within the area of the County of London. Any who desire further information on these scholarships should apply to the Executive Officer, L.C.C. Education Department, Victoria Embankment, W.C.

Arbor Day at Eynsford.

The example set by the picturesque village of Eynsford in Kent is one that might be followed with advantage throughout the land. As far back as the Jubilee year the villagers were encouraged to start planting both useful and ornamental trees, and the movement has been celebrated annually by setting aside a day of festival—Arbor Day—on which trees are planted and plantation doctrines preached to the inhabitants. On Saturday, Arbor Day was again celebrated under the guidance of Mr. E. D. Till, the enthusiastic originator of the festival. To the accompaniment of the village band, a start in the day's proceedings was made by planting a row of *Poplars*, destined to hide an unsightly railway yard. Several lady students from Swanley College lent their aid, and, in fact, were throughout the day the principal toilers. A short service was held in the Ivy-clad church, an address being given appropriate to the festival.

Annuals for Outdoor Sowing.

Yes, spring has come at last, and from henceforth seed sowing, the transplanting of seedlings, and the propagation of plants by other methods will claim a large share of attention. 'Tis a pleasant time indeed, for while the work is in progress, what visions of the floral feasts to come rise in the mind's-eye. In spring all who delight in gardening (and who does not?) feel in a younger, gayer mood, and seem to gather fresh strength from the awakening vigour shown by vegetation on all sides.

All who have a garden must have seeds, and the best seeds are the cheapest, because large, firm, ripe seeds may be depended upon to develop a vigorous race of plants—and with as much certainty puny seeds, if they germinate, will give birth to a race of weaklings. Better, then, to have the best in small quantities, than the inferior in large numbers.

When one begins to think of hardy annuals, the queen of them all—the Sweet Pea—ever rises in the mind, but she has long since become too distinguished a personage to be dealt with in a note which treats of annuals generally. The Sweet Pea must have not one article only, but many all to herself. Let us, then, pass on to some other annuals in their way not less beautiful, if not quite so much the rage.

The majority of hardy annuals succeed the best if sown where they are intended to flower, but as it is often difficult to do this, especially where they form part of an organised system of bedding, it is fortunate that many will succeed splendidly if transplanted. For instance, Mignonette, Cornflowers, Sunflowers, Chrysanthemums, Jacobeas, and even Godetias, will be but little the worse for transplanting, provided the seed is sown thinly, the plants thinned to a few inches apart before they become in the least crowded, and the soil kept firm. When, however, they can be sown in their permanent positions, that practice should be adopted. Before this is done, the beds or positions in borders where they are to be sown should be deeply dug and be well manured, and if the soil is stiff, it will always pay to work a little leaf soil or old hotbed manure into the surface. The great point is to ensure a vigorous start.

In warm districts, or sheltered sunny positions, some of the hardiest of annuals may be sown during March, but I generally find that in the Midlands the beginning of April is quite early enough. Much, however, depends on the season, and it is always well to wait until the soil is in good working order, and there is some prospect of settled weather. Where seeds are sown in patches in mixed borders it is an excellent plan to form a circular drill by pressing an inverted pot into the soil, and after having withdrawn it, to sow the seeds in the drill; it is then easy to thin the young plants in the early stages, and there is much less likelihood of their becoming crowded later, if they form a circle with an open centre. For large spaces a circle may be struck with a string attached to two sticks.

The following are some of the good things specially worthy of being grown. *Bartonia aurea*, a bright yellow flowering plant growing to a height of 18in; *Candytuft*, Sutton's Improved White Spiral, and the Dwarf Hybrid Mixed; also Veitch's Crimson. These produce a long succession of flowers, both showy in the garden and excellent when cut. They are often sown in September and planted in their permanent positions in March in order to afford very early flowers; but they also succeed splendidly if sown in March and thinned to 6in or 8in apart.

Among the annual *Chrysanthemums* there are many gems, all being of easy culture and producing a wealth of flowers suitable for cutting. *Morning Star*, *Golden Queen*, *Coronarium Burridgeanum*, *Dummetti* (white and also the golden form), are some of the best. They vary in height from 18in to 2ft, and the plants should be thinned to from eight to ten inches apart. Almost everyone is familiar with the *Clarkias*. Specially good varieties are Sutton's Double Salmon, also *Carnation-flaked Pink*, *Brilliant Rose*, and *Dwarf White*; each extremely effective. Thin the plants to 8in apart. The tall *Convolvulus*es are both showy and easily grown, and are often turned to good account as climbers—or rather twiners; but the lovely blue, pink, and white varieties of *C. minor* receive far too little attention. Growing only to the height of a foot, they are grand for either beds or borders.

Eschscholtzia Carmine King (Carter) is strikingly showy in a bed, or as a mass in a border. Although a true biennial, it succeeds well if sown in March or early April, and treated purely as an annual. The older varieties, especially *californica* and *maritima*, are also well worthy of attention. *Godetias* are plants to grow in quantity where beds, lines, or splashes of soft colours are wanted throughout the season. Excellent, too, are the flowers for cutting. Sow early in April, and thin the plants to 10in apart, and a grand display will be the result. Veitch's *Salmon Queen*, *Crimson King*, *Scarlet Queen*, *Dwarf Pink*,

Marchioness of Salisbury, are some of the best varieties; but mixtures are by no means to be despised.

The *Helichrysums* are always useful, not only because they supply bright flowers to the garden, but also because their "everlasting" flowers are so much prized during autumn or winter. *Jacobeas* are gems for supplying small flowers for making bouquets, and for other decorative work. Double dwarf varieties may be obtained in six distinct separate colours. *Larkspurs* are old favourites. Both the tall branching and dwarf *Rocket* should be grown. Sow early in April in a mass; thin to from 6in to 8in apart, and a brilliant, though somewhat fleeting display will ensue. The annual *Lupins* must not be forgotten, for although their seeds may be bought at a cheap rate, the resulting plants make a specially attractive display, and are good for cutting. Named varieties or mixtures may each be relied upon to produce something good.

The *Mignonette*, of course, everybody grows, though sometimes the plants are far too much crowded. Sow in well manured soil, make the soil firm, thin the plants to 1ft apart, and glorious spikes of the most deliciously scented of all flowers will be produced. *Giant Cloth of Gold* and *Selected Machet* are fine varieties. Of the *Nasturtiums*, both tall and dwarf, I need say but little. They are of the easiest possible culture, and the beauty of their flowers is commented upon by almost everybody.

Nigella Miss Jekyll is one of the somewhat new treasures which all should grow. It succeeds the best when sown during September or October, but from a March sowing good results can be obtained, and delightful long stemmed flowers for cutting. For sowing in the waste places, where some other things will not thrive, we have *Poppies* of various types, many of which will also pay for being given a good position. Among the most showy are the following:—*Shirley*, *Mikado*, *French Ranunculus*, *Webb's White Swan*, and *Dwarf Japanese Pompon*. Also when May comes round, *Stocks*, *Asters*, *Zinnias*, and *Marigolds* may be sown in the open air to give late-flowering plants of vigorous sturdy growth.—H. DUNKIN.

Planting a Shrubbery.

The arranging of the shrubs needs considerable attention and much preliminary thought. Though each will have his own ideas on the subject, and these will have to be adopted to the circumstances of his own particular case, yet there are certain general principles which should be kept in view. Some advocate planting at such distance apart as to permit of taking out alternate shrubs in two or three years' time. Even if one has the heart to do the thinning out sufficiently when the time comes, it is not a very good plan, as the shrubs to be taken out abstract much nutriment from the soil that those remaining will want, and before the thinning out takes place the latter will most likely have suffered from crowding and begun to get bare below. A better way is to give the shrubs ample space at the time of planting, and to grow annuals and low-growing perennials of a non-spreading character among them. If the soil has been properly prepared for the shrubs these flowers will do very well for two or three years, and this is probably as long as they will be really needed. The *Cherry* and *Portugal Laurels* should only be planted where a thick hedge or screen is wanted, or next to fences and walls where anything choicer may be damaged by cattle or passers-by. If planted amongst choicer shrubs they are bound to smother them eventually.

There are so many evergreens of more beautiful and delicate, and yet vigorous growth, that there is no need to plant these coarse shrubs, except in the circumstances mentioned, or where a very large specimen evergreen is wanted. In choosing and arranging the shrubs an eye should be kept to colour effect so as to avoid having a Red Currant next to a scarlet Japanese Quince; or a *Daphne mezereum* between them. While each shrub should have room to develop its distinctive beauty of form, yet it is often effective to plant three or four of the same variety together so as to form a large bold mass having the appearance of one fine shrub, with perfect freedom of expansion for all the outer branches of the group. This is infinitely more effective than dotting the same variety about the plantation.

A shrubbery should not be composed either wholly of evergreens or wholly of deciduous shrubs, for in the former case it looks too sombre both winter and summer, and in the latter case too bare six months of the year. Both should be planted, when the leafless shrubs will show up the evergreens in the winter, and the darker tones of the latter will show up the lighter tones of the deciduous shrubs in the summer. Care should be taken not to plant too many evergreens with coloured leaves, for though their effect is very pleasing in a few bold groups, an excess detracts from the natural beauty of the shrubbery. They should be arranged so as to produce the most pleasing effect when in juxtaposition with shrubs of ordinary green tints.—A. PETTS.

Eaton Hall, Chester, * * *

The Ancestral Home of the Grosvenors.

UPON the twenty-first of August last year, after having despatched a telegraphic report of the great Shrewsbury Show to the *Journal of Horticulture*, I found myself at the railway station seeking a fast train to Chester, forty miles farther north. Soon the home of Charles Darwin, and the scene of Hotspur's defeat hard by Shrewsbury was in the rear, and our Puffing Billy of latter day was rounding the curve at Ruabon, recently famous for its Sweet Peas; past Wrexham, the largest centre of the mining industry in North Wales; and within an hour we had entered the County of Chester, where one's fancy turned to George Ormerod (the scholarly father of the late Eleanor Ormerod, LL.D.), whose "History of the County and the City of Chester," places him high among county historians. Two other distinguished names that are familiar to horticulturists, and revered by them, are those of John Gerarde, the herbalist, who was born at Nantwich in 1545, and of Dr. Fothergill, the celebrated botanist and physician.

Thoughts of these and other distinguished Cheshire names occupied me until suddenly we came upon Chester, the city of centuries, the *Devena castra* of the Romans, one of the most beautiful, quaint and interesting in the whole of England. No city in these islands possesses a more graceful or more charming cathedral, built, as it is, of almost carmine-coloured sandstone and widely surrounded with green sward. Then there are the well-preserved city walls, which are free to be traversed by every tourist, from which vantage ground the various scenic objects are viewed with ease and comfort. Lastly, there is the placid River Dee, more a Welsh than a Cheshire river, but which is an open highway for all the small boating craft of the township, and bears upon its waters the gentle little steamers that ply all day long between Chester and Eaton Hall throughout the summer. It was upon one of these tiny steamboats, to the accompaniment of instrumental music, that I journeyed up the river to far-famed Eaton on the following morning. What a pleasant day it was; with coolness and every sensuous delight bearing in upon me—a most refreshing trip after the crowds and the rather strenuous bustle inseparable from such a huge exhibition as the one at Shrewsbury. So with high hopes of spending a good day, in which I was not disappointed, an approach was made upon Eaton westward.

This portion of the park is open to the public, who may use its splendidly made avenues, roadways, and grass paths to their hearts' content, or lie all day, if they choose, under the shade of the great trees. A charge of sixpence per person, however, has to be made upon those who wish to go farther and see the magnificent mansion and gardens. The money so collected, which amounts to an average of £1,000 yearly, is handed over to the Chester charities. It seems strange to see numbers of people walking about in all parts of the fruit and kitchen gardens, and also viewing the art treasures, the wonderful marbles, and famous paintings in the saloon. The plant houses only are open to the public.

EXTENT OF THE ESTATE.

As to the extent of the Eaton estate, "of the 16,800 acres in Cheshire and adjoining counties," says a writer in the "Country Gentlemen's Estate Book, 1905," "14,000 are let off in agricultural holdings and to cottagers; 800 acres are accounted for by the mansion, the park, and the paddocks; 750 acres embrace the home farms; the plantations and drives account for 1,250 more, and the stone quarries, used or disused, cover an area of 10 acres." The bulk of the estate lies in Cheshire, but crosses the Welsh border at Bretton and Higher Kinnerton in Flintshire, and again at Burton and Allington in Denbighshire. The same writer continues: "The River Dee divides the estate into almost equal portions. Its geological formation is mainly stiff clay, with marl and clay sub-soil, overlying the new red sandstone, which crops out at all parts except on the western side. The whole estate is well wooded throughout, chiefly with Oak, Spanish Chestnut, Elm, Beech, Scotch Fir, and Spruce, many of the trees in the magnificent Belgrave Avenue being of the small-leaved English Elm, and reaching between 80ft and 100ft in height.

GARDEN ALLOTMENTS.

"An interesting experiment in dairy farming and in gardening allotments has met with a fair measure of success. For the purposes of dairying, fields are let out to the cottagers, who pay 30s. per cow per annum, and other fields are set apart for the hay crop, and are let to the same persons at £2 per acre. Where the scheme has been taken advantage of with a serious intent the tenants have done well, and after a while have felt themselves in a position to take the first small farm that fell vacant. Then for others who do not care to take up the milk business, garden allotments are provided. There are 218 of these. In the Handbridge district—a suburb of Chester, in which the majority of the Dee salmon fishermen live—no fewer than twenty-seven acres were set apart for the purpose. This was divided into quarter-acre plots with good roads and fences, and let at an annual rent of £1 5s. per plot, the conditions attached being that the roads should be kept in decent repair, the rent paid not later than August—although the tenancies are from February to February—and at least half of each plot to be manured annually. At the village of Aldford a similar scheme is worked with notable success. Thirty-five acres are in use. One allotment extends to two acres; there are four of one acre each, forty of half an acre, and thirty-six of a quarter acre, let at £2 per acre, the owner paying all tithes and taxes."

AN OSTER BED.

I do not wish to deviate further from the main subject, but one other interesting reference deserves consideration. The estate contains quantities of game, including such unusual birds there as snipe. "It is interesting to note" (continues the narrator from whom I have already quoted), "that the thirty acres of Oster beds at Aldford and Poulton, in which these birds find cover, were originally sown for their protection and preservation. The quick-growing *Salix viminalis* was chosen by Mr. W. A. Forster, the forester, and when the time came for the rods to be cut, a profitable crop was obtained. For years scores of tons were sold at profitable prices, but some years since the demand fell, owing to the huge quantities at very low price from Holland, Belgium, and France. In 1904, however, a local demand was again discovered, and there are prospects of that which was sown for sport once more proving a source of income."

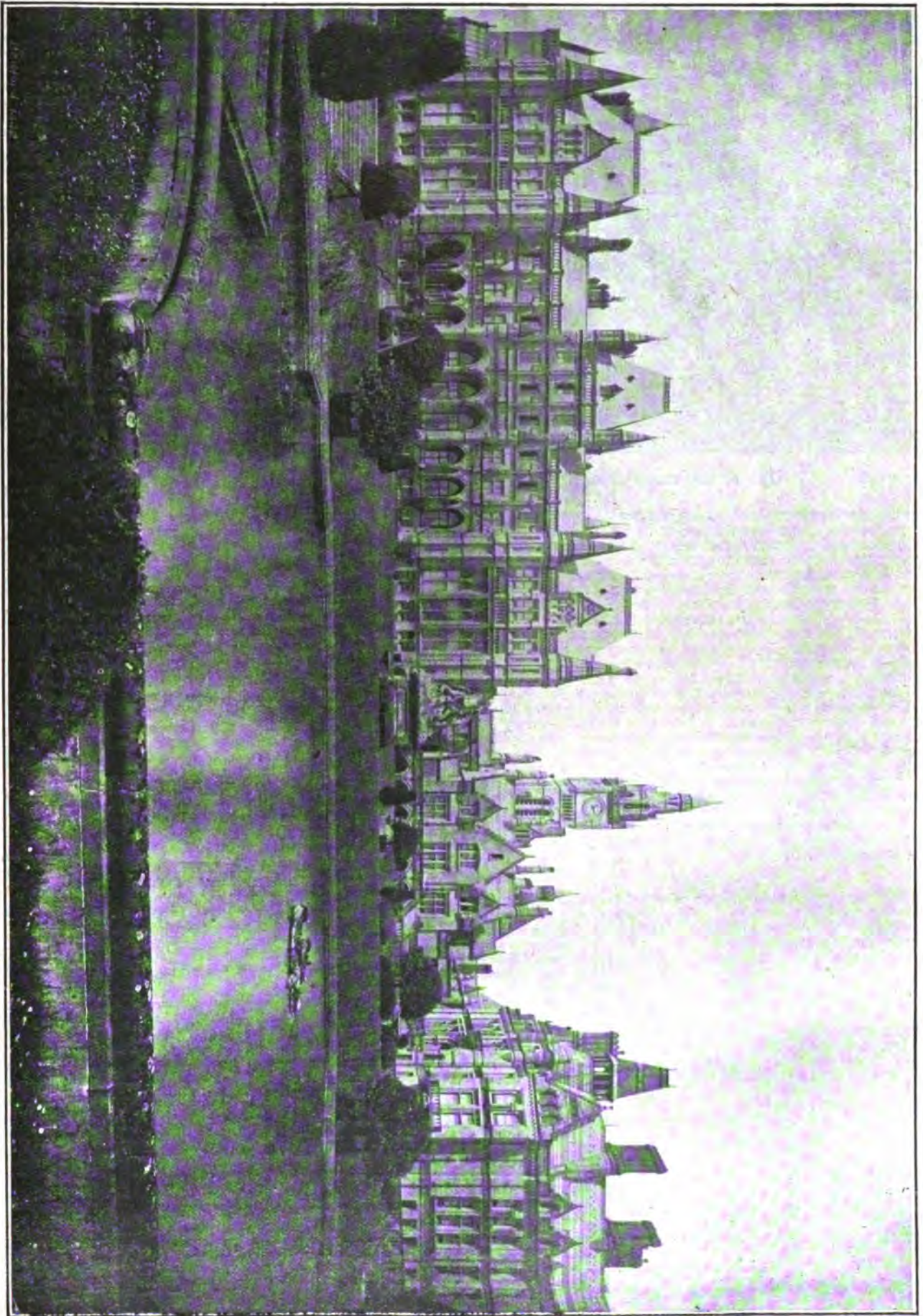
THE CORRIDOR.

But already I begin to feel that the purely horticultural reader is wading through these paragraphs with some impatience, and would bring one up sharp to the glass corridors, sheltering a harvest of fragrant flowers, and to the long ranges of vineries hung with luscious Grapes. We are face to face now, however, with those wonderful ranges. We are in the midst of a princely garden. Everything, from the moment one opens the first greenhouse door, until the last garden gate is closed—everything bears the impress of ceaseless care, attention to minutiae, skilful operation, and amplitude of means. There is nothing cribbed, cabined, or confined about Eaton. Magnificence is written all over it. Without doubt it is a show place; and an ideal show place. For the honour of Old England, especially in these days of gaudy American millionaires, I am glad to know there are such places as Eaton Hall.

Let us look into the long plant corridor, and a glance at our picture of it (page 261), will assist in forming an early and pleasant conception. This is 300ft from end to end, and it is filled all the while with plants in bloom and with plants grown for their foliage. Three houses are set aside to supply it. It has a costly "appetite."

Pausing on the threshold at the bothy end, one's attention is first of all arrested by the outdoor clumps of named Sweet Peas that are now just passing their best, and situated within a squared area, encompassed with Yew hedges. Here the Peas are grown. They are raised early in pots, and are then set out. Within the corridor there is a feast of Fuchsias, one very large plant of *gracilis* being especially prominent upon the roof. Another important subject, also overhead, is the Silver Wattle, or *Mimosa* (*Acacia dealbata*), quite tree-like, whose flowers and fragrance in spring must be an outstanding feature. In their

South View of Eaton Hall, with Terraces and Fountains.





By Courtesy of]

One of the many Statuary Adornments.

[County Gents. Assoc.

season the corridor contains *Hydrangeas*, both *Hortensia* and the laxer *paniculata grandiflora*; together with *Coleus thyrsoides*, *Ruellia macrantha*, *Luculia gratissima*, *Acalypha hispida*, and *Liliums*, particularly *auratum* and *speciosum*. *Humea elegans* is also a favourite; and, as we see from the picture, *Richardias* are not tabooed. *Schizanthus pinnatus* and *S. retusus* also form a feature herein in spring. The hot-water mains flow beneath the broad floor of the corridor, and the system is admirably planned, for man-holes are left at intervals to facilitate inspection of the pipes. In this place I may say also that there are four of Mackenzie and Moncur's huge boilers at the command of the stoker, these being situated in one large and well-equipped stoke-hole, with six other boilers elsewhere—ten in all. This looks like business surely, and is an index to the extent of the houses and their productions. There are, indeed, exactly 100 houses and pits, requiring the attentions of five men on full-day duty on Sundays in summer, and three to four in winter. The beautiful half-timbered bothy of red brick lodges twenty-one journeymen gardeners and the foreman. My thanks are due to Mr. Bolas, who mainly escorted me throughout, who was foreman last August, but has since assumed a head gardenership with all its concomitant responsibilities. He was succeeded as plant foreman by Mr. E. Beckett, a nephew of the renowned Edwin Beckett of Aldenham.

FAMILY HISTORY.

So far nothing has been said about the noble owners of Eaton, the palatial home of the Grosvenors for thirty generations. It came into the family by the marriage of Raufe de Grosvenor, Lord of Hulme (Cheshire), with Joan, heiress of John de Eaton. Gilbert de Gros Veneur ("Grand Huntsman"), nephew of Hugh Lupus, the wassailing and rotund Norman Overlord of Chester, whose statue in bronze may be seen at Eaton Hall, appears to have been the earliest of the family in England. That was in or about the year 1100; and the lineage has been unbroken for eight hundred years, down to the present Hugh Grosvenor, Duke of Westminster. The London estates were also introduced by marriage in the time of Charles II.

The gardens were laid out by Humphrey Repton (1752-1818), or, at least, altered according to his plans. He followed "Capability" Brown, but modified Brown's prevailing suave style, and developed what came to be termed the "gardenesque." [Mr. Barnes informs me that Nesfield was responsible for the main front, in the early sixties, at the time of the craze for bedding "Geraniums."] Repton's "Art of Landscape Gardening" has been thought sufficiently noteworthy to bear reprinting in this year of grace, 1908. If the beautiful walls, of rich red brick, high and massive, and handsomely ornamented with finials and ball tops, are his, I like his work in this direction. Just a peep of part of a wall, with the finials I have mentioned, is shown in the upper illustration on the next page.

THE GLASS HOUSES.

Again we shall hark back to the houses. The long corridor may be likened to the backbone or vertebra of this portion of the glass department, having large and beautifully built spans on the southward side, and other houses (which I believe are lean-to's, and parallel, however) on the north side. One of the spans is a greenhouse, and was filled with *Salvias* in August, to be followed with *Chrysanthemums* and *Richardias*. There is also a Malmaison house, the plants for which are layered in July, potted on into 6in pots, and then straight into 10in pots for flowering the following year. In August, however, a separate house was very gay with *Mals.*, each plant in a 6in pot and carrying one flower. These were mainly *Princess of Wales*, and were of magnificent size and colour, and very fragrant. This was quite one of Mr. Barnes's masterpieces, and for which he deserves the highest praise. The new early-flowering variety *Duchess of Westminster* (rosy-pink), raised at Eaton, continues through the winter.

Equal in merit, however, and indeed finer from a merely scenic standpoint, was the aquatic house, so-called because of the large rectangular central tank in which *Nymphaeas stellata*, *chromatella*, and others of the genus are grown. Imagine these, jewelling the waters, the pillars around the tank banked up with the loveliest of ferns (*Nephrolepis*), and huge specimen *Medanillas* magnifica in 12in pots flowering at each corner, and tastefully composed pyramids of *Clerodendron fallax*, *Abutilon Savitzi*, and *Achimenes* in the intermediate spaces. Words cannot adequately picture this most lovely scene, and a photographic view of it was not procurable. Overhead were baskets of *Achimenes coccinea* (scarlet), *longiflora* (violet), and *Verschaffelti* (white), forming globular masses of bloom. *Tydæas*, which are not generally seen, were also among the notable subjects. In May, during the Chester races, this fine house is given over to *Hippeastrums*. I might mention that the *Clerodendrons* are sown in March, and are brought on in the Melon house.

Another specially fine subject, "done well" at Eaton, is *Euphorbia jacquiniiflora*, with graceful shoots, 4ft to 5ft long, starred with their cochineal flowers. Six hundred plants are grown from cuttings taken in April and at intervals until July, being potted on into 6in pots, and after that kept fed. These successional batches come into use during winter and spring.

The "Spring House" is given over to bulbs at that season; but in August the stages displayed *Kalanchoe flammea*, *Francosa ramosa*, the Bridal-wreath, *Kalanchoe coccinea* (6in and 8in pots), *Lobelia tenuior*, *Browallia speciosa*, and other showy plants of a like character, with *Fuchsias* as climbers. There were shelves for *Freesias*, and some notably fine plants of *Dracæna australis purpurea* deserve a reference.

Close upon this came the great palm conservatory, chokeful of palms in all stages, from the smaller sizes to huge giants of twenty years' standing. Needless to say, these are constantly being utilised for decorations in the mansion. *Poinsettias* (*Euphorbia pulcherrima*) also fill a division, being struck in June for Christmas flowering. *Begonias Gloire de Lorraine* share this house in the dull months. As we still proceed, we enter yet another span, the Azalea House, because Indian Azaleas entirely fill it. The plants are models of long and able cultivation, reminding one of the specimens we read of as shown in the fifties and sixties of last century. The collection includes the best named kinds, and not a few of the old varieties, as *Carmichaelæ* and *Princess Maud*, which are perhaps now seldom seen, and yet are so useful for quick forcing.

ROSES AND VIOLAS

Between the span-houses, out of doors, there are beds for *Roses* and *Violas*, and by the base of the walls, at least in the central area of the long terraced range, there are neat borders. These were soon to be massed with early-flowering dwarf *Chrysanthemums*, but just then had *Lobelia fulgens* *Queen Victoria*, and *Dianthus*, having an edging band of Mortimer's new

Wallflower-leaved Stock, a noble border plant with thick spikes of glistening white flowers. The plain geometrical beds had a stone edging. Among the Roses were such good hybrid teas and decorators as Cramoisie Superieure (with Viola Papilio), Ma Capucine (with Viola J. B. Riding), Madame Abel Chatenay (also with a blue Viola). The Violas, however, had grown rather straggly. Over all the but-tresses, and on arches too, Dorothy Perkins was still enswathed in pinky clouds, enriching and beautifying the whole place. Violas are great favourites with the Duchess of Westminster, who is a keen gardener. A novel feature was her Viola Garden in an open glade close against the Dutch Garden. Her Grace had provided the design—somewhat like an elaborate x, with sinuous tails. Lying there as a winding sheet of colour in the grass, with the slight shade of the trees above, it appeared to me to be an element in decorative gardening that deserves encouragement, and one hopes the Duchess will be instrumental in making it a fashionable feature.

THE ORCHIDS.

The plant houses at the back of the long corridor were once sheds, but having been glass-roofed, they form very serviceable places. Cœlogynes in pans measure 3ft across. They are treated to good Caterham (Surrey) loam, as well as peat, and amply repay. Cyclamens, too, were grand stuff. In the other well-appointed houses devoted to orchids were successional batches of Calanthes, with majestic bulbs, over a foot in length. These are grown in lean-to sunken pits, and when in flower are transferred to the Cattleya house. This also contains some Cypripediums, Cœlogyne Dayana, &c., as well as the Cattleyas; but a house is set aside specially for Cypripediums, having Cœlogynes in front. The Odontoglossum collection is equally numerous, the plants being staged on raised shelves nearer the glass. What the orchid range is like may be gathered from the beautiful photographic illustration kindly supplied by Mr. Barnes, the head gardener. Gardenias are as great a feature as Carnations, or more so. One house is given over to them, and propagation of the plants goes on all the year, since Gardenia flowers are packed and sent to Her Grace the Duchess every night. This is her favourite flower. Then to those strong "Lorraine" men, who revel in quantities (as well as quality) of this lovely winter Begonia, I would ask, What do you say



Portion of Garden Wall and Flower Border.

to 1,000 pyramidal plants? This is the number cultivated at Eaton.

Having now circumnavigated the floral department of the houses, and with a passing glance at the Chrysanthemums out of doors, we can pass on for a brief review at the fruit trees and vineries. Magnificence, I have already said, is written all over Eaton Hall. Magnitude is also a very evident factor, especially in the garden. We have left 1,000 specimen Begonias; here are three times that number of sturdy Japanese Chrysanthemums. Quite a goodly stock of them are large, staked-out specimens, with thirty-five to forty main stems, in 12in pots. But I cannot linger over these, much as I would like to. Suffice it to say that the collection is kept up to date, and weeding-out taking place each year.

FRUIT UNDER GLASS.

Now to the fruit, and it is just here that a slight tremor runs through me. One labours under a sense of inability to



The Flower Garden, Eaton Hall.

convey an impression of the true condition of the fruit crops to one's expectant readers. I can well imagine that what has been said in the foregoing columns will mildly surprise not a few who have read thus far, because places with great names do not always come up to expectations horticulturally. All of us have, or had, a vague knowledge of the spaciousness and general architectural grandeur of the gardens, and since Mr. Barnes has again taken to showing fruit at the great exhibitions, we had ocular demonstration that the fruit was "all right," as the saying is; but not having heard of Eaton's floral excellence, we were left wondering. That section, as we have seen, is equal to the fruit; and it is now that one begins to feel overwhelmed. So much that is not of the every-day order is here, that one is strongly tempted to gossip on and on at inordinate length, to the vexation of the presiding magistrate at Mitre Court, and the "grand jury."

and tall conservatory, of copper framework, which was formerly in the ornamental grounds, but was brought up to the walled garden, is now used as an orchard house. Tiered wooden stages have been erected, so as to raise the pot-trees within a favourable distance of the glass, and it therefore requires steps to reach the higher series. Something like 400 trees are housed, and judging by their general healthiness, good furnishing, shape and crops, every condition is made to their liking. Cordon Pears are trained to the supporting pillars, and they have never failed to bear. As an example of how well the best trees carry their crops, a pot specimen of the Jefferson Gage Plum bore seventy-two first-class fruits. Six dozen! Yes; but with parties of forty to dinner at the Hall the supply is never too abundant. These trees were heavily top-dressed. The same remark applied to the pot-grown Apple trees, standing upon the early vinery border, the pots being plunged to



One of the Orchard Houses, Eaton Hall.

Mr. Barnes won first in the class for a decorated dinner table, with sixteen dishes of fruit, at Shrewsbury, and some of the principal prizes at Edinburgh. These facts speak for themselves. As to the exact extent of the fruit houses I am uncertain. There were at least two long ranges in six divisions devoted to early and midseason Vines, Peaches, and Figs. Particularly fine were the young Muscats, planted in 1904. The whole cultivation is scientifically watched. As in all first-class gardens a chart or record is kept of the chief phenomena—as the dates of breaking, flowering, thinning, stoning, first cut, and so on. Black Hamburgh, Lady Hutt, Lady Downes' Seedling, Madresfield Court, and Muscat of Alexandria each have capacious houses devoted to them. A long Peach case round a south wall of crescent form, with its curvilinear and overlapping system of glazing, was particularly interesting. The trees were in splendid condition, full of good wood and covered with fruit. Figs are also a great success; one Brown Turkey tree extends to 15ft or 18ft. Small borders are the rule.

The pot trees are of the greatest attraction. A very large

the rims in leaf mould and litter. Being free to the dews, the wind, and the sunshine, the fruits colour vividly, and are of excellent flavour. They are netted over, and the collection could only be described in the expression of Dominic Samson, "Prodigious!" Prodigious of high excellence they truly were. Among others I noted the varieties Ben's Red, James Grieve, Ribston, Allington, Cox's, Peasgood's, Coronation, Rival, and C. Ross.

Melons are in pits, made by the garden carpenter. Two fruits only are allowed to each plant, and the favourite varieties are Eaton Seedling, a nicely-netted yellow-skinned fruit; Hero of Lockinge, The Peer, and Countess. Six thousand Strawberry plants are annually forced. Tomatoes are fruited winter and summer; and Capsicums for garnishing were abundant. The seeds are sown in March. Some smaller pits are devoted to early Potatoes and other crops in spring.

OUTDOOR FLOWERS.

The walled garden has a magnificent broad central walk, a quarter of a mile in straight length, terminated at either end



Spring View in the Long Corridor at Eaton Hall.

with beautiful brass and wrought-iron gates. The walls are 14ft high, and three transverse walls, running north and south, divide the area into four large compartments. The walls are not given over to fruit as in most gardens; for some, at least, had their sides covered with Ivy. Moreover, there were curious Yew buttresses, kept rigidly clipped, and of sloping and shelving form. These had quite an ideal architectural appearance, and must be generations old.

The chief features of these several compartments, to use that term, so far as I made notes, were, in No. 1, a gorgeous hedge of Dorothy Perkins Rose, Sweet Peas, quantities of Violets, borders of Carnations, and pretty espaliers with obliquely-crossed cordon Apples, thus—XXX. No. 2 had mainly spring bedding plants (Wallflowers, Alyssums, &c.), Roses in borders and on a wire fence, and Chrysanthemums. It should be observed that all the borders are neatly edged with Ivy, pegged down, and kept cut. Compartment No. 3 was

are visible, and other ornaments, including water basins of geometrical pattern, encircled with smooth lawns, and also fountains. The accompanying illustrations (page 259) present a great deal of detail and save me a written description. There are many old-time features at Eaton that I have not space or time to dwell upon, but they all add to its wonderful interest. An introduction of recent years, at the Duchess's order, and by her plans, is a comparatively large, square, pleached "bowery." Lime trees are arranged closely in rows, upon each side of flagged pathways, and form shaded galleries, these joining into one another transversely and longitudinally. Scented plants grow between the chinks of the paving stones, and "old-fashioned" flowers, like Lavender, Southernwood, Balm, and Bergamot, compose an ideal border line by the sides. In later years this will be a happy and pleasant retiring place. Her Grace has also laid out a Dutch Garden, a spring view of which is given with the Tulips all ablow. Observe the red-tiled paths,



Tulips in the Duchess's Garden.

absorbed by some of the plant houses and pits, also vineries. Here were Privet hedges, breast high, inside of which were Strawberries. The hedges gave a furnished and cosy appearance. Then in the fourth section beyond were Montbretias, beds of the newer named sorts side by side; Phloxes, Penstemons, more Sweet Peas, more arches of Roses, and the Peach-case previously described. Also in a quiet sunny spot, with a tiny lawn in front, stands the dearest of little offices, where Mr. Barnes conducts his clerical work.

FEATURES IN THE GROUNDS.

The kitchen garden of ten acres lies far apart from that portion that has been described. It is beyond the ornamental grounds, and is quite a mile to the westward, across the River Dee. Eaton Hall stands upon an eminence, almost reflecting its airy spires and tall clock tower in the beautiful lake at the foot of the slope. The southward front is a series of terraces, partly architectural, partly green-sward. Numerous statues

and the Box-edged beds. Tulips provide a feast for the eye in springtime, while the neighbouring woods are filled with Daffodils; and the air is heavily scented during the warmth of summer with the fragrance of Roses, Stocks, Violas, Pansies, Heliotropes, Phloxes, Tobacco plants, while Clematises and Roses fling wreaths of floral elegance over the many arches. A fountain with a bronze figure of Mercury occupies the centre; a charming tea-room and summer-house with beautifully carved wood-work is on the east side, and a dove-cote with fantails perched thereon is opposite. Also in a recess of the Yew hedge we find one of White's antique wooden benches, of which several designs were illustrated in the *Journal of Horticulture* last year. The dove-cot and the seats are painted white. In another part of the ornamental grounds there is a magnificent herbaceous plant border arranged in the best style of the present day. The inevitable maze (of Beech hedges) is another adjunct, and this is close by the Hall. Ransomes' motor mowers pirouette upon the lawns.

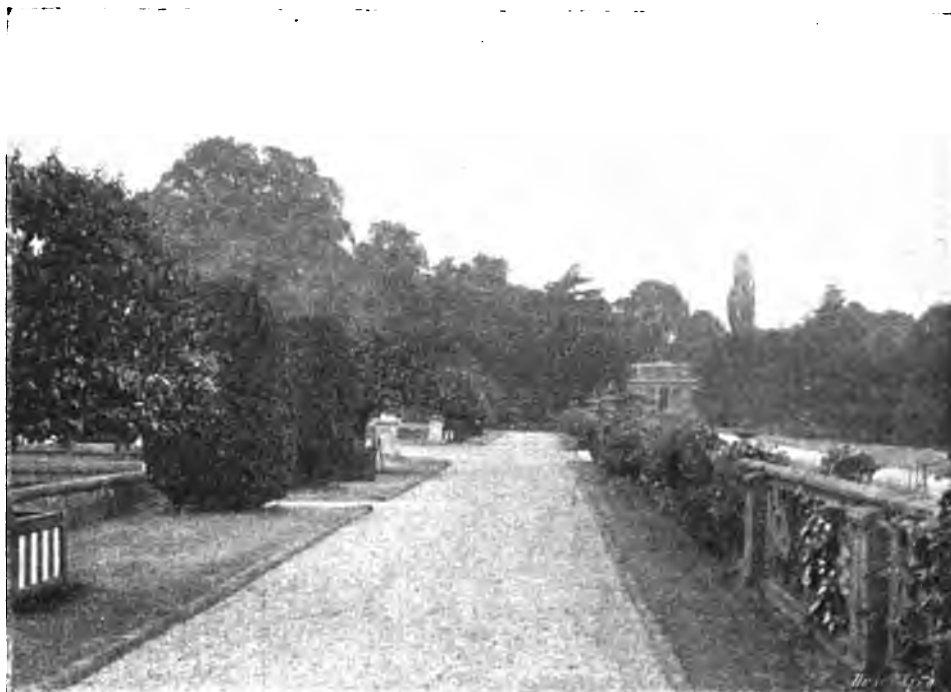
The sinuous path to the Woodland Walk, which encircles

the lake, provides a *coup d'oeil* at the Parrot-house, a beautiful rotunda, built of terra-cotta slabs, and poised upon rising ground. This was formerly used as a parrot-house, but is now largely devoted as a storage place for a huge marble bath, and other stone objects. The acoustic properties are highly excellent, and the sound of a "whoop!" goes vibrantly to the very apex of the dome and seems to escape, at the last, like a sigh. Close to the Parrot-house may be seen the ice-house, which gets stocked afresh most winters. Far off in the distance, in the south-eastern direction, one catches sight of Beeston Castle, standing high, and a gracious panorama of field and tree and river passes the eye in the intermediate country. Cheshire may not have scenic grandeur, but the views southward from Eaton's terraces are extremely pleasant.

THE LAKE AND WOODLAND WALK.

The lake covers four to six acres. A wooden bridge (which was also figured in these pages), spans an arm of the western side, where the *Nymphaeas* grow. The operation of opening up and planting groups of suitable shrubs and flowers has been engaging Mr. Barnes for two winters past. Undoubtedly this will be a most refreshing addition to the gardens, and Her Grace is to be congratulated on initiating in this, a piece of work that in time will be one of the features of Eaton. The work is now well on towards completion. A grass path, or convex surface and well drained, has been planned, while groups and masses of the following are met with on the right hand and left:—

<i>Aralia mandschurica</i> and	Bullrushes (<i>Typha</i>).
<i>variegata</i> .	Cherries, double flowered.
<i>Arundo Donax</i> and its varie-	<i>Chrysanthemum leucanthemum</i> .
gated form.	<i>Eremuri</i> .
<i>Azaleas</i> .	Foxgloves.
<i>Astilbe Davidi</i> (by the water,	Ferns (numerous).
6ft high).	<i>Galtonia candicans</i> .
<i>Aquilegias</i> .	<i>Gladioli</i> .
<i>Berberis Thunbergi</i> .	



By courtesy of]

Upon the Terraces, Eaton Hall.

[Country Gents. Assoc.

Gorse, double-flowered.	<i>Pyrus floribunda</i> .
<i>Gunneras</i> .	<i>Pyrus Scheideckeri</i> .
Irises, Japanese and Bearded.	<i>Rhododendrons</i> (Gomer
<i>Lilium auratum</i> .	Waterer, Pink Pearl, &c.)
<i>Lilium chalcedonicum</i>	Roses (including the new
<i>Lilium speciosum</i> .	<i>sericea pteracantha</i> , also
<i>Lilium tigrinum</i> .	<i>Hermosa</i> , <i>rugosa</i> , <i>Hiawatha</i> ,
<i>Lythrum Salicaria rosea</i> .	&c., the latter over tree roots)
<i>Magnolias</i> .	<i>Spartium junceum</i> .
Maples, Japanese.	<i>Salix Douglassi</i> and <i>vitellina</i> .
<i>Megaseas</i> (<i>Saxifraga cordata</i>).	<i>Senecio clivorum</i> .
<i>Osmunda regalis</i> .	<i>Spiraea Aitchisoni</i> .
<i>Pæonies</i> .	<i>Spiraea Aruncus</i> .
<i>Phormiums</i> .	<i>Spiraea arifolia</i> .
<i>Phyllostachys</i> (and other bam-	<i>Tamarix gallica</i> .
boos).	<i>Viburnum Opulus</i> , &c., &c.

VEGETABLES AND HARDY FRUIT.

The "last item on the programme," as usual, is the kale-yard—the kitchen garden. This is where the hardy fruit is also mainly grown. Mulching is liberally indulged in; indeed, everything is mulched. The bush fruits (Currants and Gooseberries) are under a permanent wire-netting, therefore birds are harmless. Water is also laid on all over the six acres; and with an excellent loam and abundance of rich manure, some startling crops of both fruits and vegetables are garnered. The bush form of tree is wisely preferred, and quite one acre of the leading kinds have been planted (at 7ft apart) during the past six years; and some of the older trees have been headed back and grafted.

As to the culinary crops, their quantities remind one more of the market gardens of Middlesex than of a private place, there being half an acre of Cauliflowers, as much of Cabbages and Sprouts; Beet a quarter acre, Onions the same, and endless lines of Peas on wire-netting. A large portion of this ground was recently taken in from the surrounding fields; and all the brakes are edged with Privet, kept low by clipping. It will thus be seen that in all de-



By courtesy of]

Part of the Lake, Eaton Hall.

[Country Gents. Assoc.

partments the gardens have undergone considerable developments since the present Duke and Duchess inherited the property. Of this I am certain, I shall never see a nobler garden or demesne than that of Eaton Hall. Pages could yet be filled with descriptions of the moated farms, the tumuli, the Roman remains here and there, the course of Watling Street through the estate, the new building estate in Chester, and of the miniature private railway that cost nearly £6,000 to build and equip, and sustains a haulage of 6,000 tons a year; but that is part of another story. Just a concluding word of thanks to Mr. and Mrs. Barnes for their kindness as my hosts of that pleasant August day; and if I may, I should like nothing so much as to once again ramble through the gardens of glorious Eaton Hall.—J. H. D.

Questions and Answers.

Would Protection Benefit the Nurseryman and Market Gardener?

(1). THE NURSERYMAN AND SEEDSMAN.

There is no doubt that beyond the effect produced by the encouragement given to foreign fruit and vegetables, which thus restricts fruit cultivation, our trade is seriously handicapped by competition from abroad, where they get cheaper labour, and the men work for many more hours a day than in England; and, moreover, they *do* work, and stick at their work. One of our greatest evils is the way Dutch stuff is dumped into this country at auction, comprising not only bulbs, but trees and shrubs, and also Roses from France. This latter trade has grown immensely of late, principally from the recommendation of some parties who put patriotism on one side, though they are wealthy, and could well afford to support "home industries," while it is doubtful in the end if they save much, certainly not in quality, as no plants can compare with well-grown English Roses, such as our growers send out. A further evil is this, that many foreign growers will send their wholesale catalogue to any applicant, while they profess only to do a wholesale trade, and as a nurseryman with a wide circle of clients, I might add, buyers are often known to pay cash for such Continental purchases, and at the same time take long credit with local firms. I could write much more; but of this I am sure that a ten per cent. import duty on all foreign produce in our trade would bring in a decent revenue, without appreciably increasing cost to consumers, and serve to assist our home production and benefit our workmen, and relieve the heavily-burdened British taxpayer. The export trade to the Continent is very small, and the delays in transit there are shocking, so that we get no *quid pro quo*. In fact, it is heads I win, tails you lose, with our friends the foreigners.—GEORGE BUNYARD, Maidstone.

(2). THE MARKET GARDENER.

It all depends on which "Market Gardener," and what you mean by "Protection." The market gardeners near London once petitioned Parliament against the making up of the roads, because to do so would bring produce from a wider area into competition with theirs! They had a clear idea of what protection meant, and which market gardener was to be protected. The Rt. Hon. A. J. Balfour at Edinburgh, October 3, 1904, said, "A protective policy, as I understand it, is a policy which aims at supporting or creating home industries by raising prices." It would help the market gardener if you protected his industry so as to raise the prices of the commodities he produces, provided you could get the public to purchase them at the higher prices as readily as they do now, and provided at the same time the prices of those things he must buy are not increased.

It will benefit the home market gardener if by protection you can relieve him of the competition of importations of cheap fruit, flowers, and vegetables from abroad, and maintain the demand which these importations have by their cheapness helped to create. It will be a sorry "benefit" to protect his industry by raising prices, and with the same hand injure his market for disposing of his goods. Protection will be of small benefit to the market gardener if it has the effect of raising the prices of the things he must buy. The baskets and paper to pack his goods, the implements, tools, or flower pots he must use, the fertilisers for his land, the food stuff for his cattle, the clothing, and provisions for his household, and last, but not least, the

rent and rates he must pay. Your protection must extend to all these, or your benefit will be like to that achieved by the dog of classical fable, who lost his substance by grasping at the shadow. Your protection must go farther even than this to be of substantial benefit. What import duties would have protected the market gardener against the ruinous prices to which Cabbage fell last April, Lettuce last June and July, Plums last September, and Chrysanthemums last October and November? If at the same time the price of every home produce in competition with foreign, had been raised by protection, the market gardener would indeed have had a disastrous year! Unlike Achilles, his whole body would have been naked to that enemy, save a tiny spot of his heel "protected!"—Wm. J. LOVJOIT, February 17, 1908.

Have Scottish Gardeners Deteriorated?

The Editor of "OUR JOURNAL" has propounded a question which is not so easy to answer as it looks, as it involves several considerations which act and re-act upon it. I do not think, however, that it calls for, or can be sufficiently answered by a simple reply in the affirmative or the negative. Indeed, our good Editor has led me to infer that the question really involves another: "Have the English gardeners improved?" and this simplifies the subject greatly, seeing that it puts it in a more comparative way. One cannot well treat it otherwise, or it would fail to serve the purpose for which the question has been put—that of seeing what foundation there is for the repeated advertisements for a gardener with the addition of the words "Scotch preferred," or something of that kind.

In the first place let me say that I am confident that the English gardener has improved as a whole. I observe in him a keener and more intelligent spirit and a truer appreciation of the value of knowledge, both of his own work and of other things. Then the greater enterprise of the horticultural establishments, both public and trade, in the south, together with the keenness of competition in nurseries and market gardens has helped to improve the English gardener. The better educational opportunities are beginning to tell also; the influence of the technical press is more widespread than before; and horticultural associations, which have a great influence, are steadily increasing. It is gratifying, indeed, to see the brighter and keener spirit shown by the young English gardener. Let me make myself clear. I am not seeking to decry the best English gardeners of the old school. They were second to none in ability.

It cannot, I think, be denied that the improvement of the English gardener has been more than that shown by the average Scottish gardener. The latter had the advantage to begin with of a better education, largely the result of the old parish schools, which, at all events, laid a good foundation of education for the youth of parts, although some were, doubtless, neglected. At the parish school of the old days the youth had a chance of picking up some knowledge of Latin and other subjects, of great service to a gardener in after years; while his general knowledge, a considerable factor in stimulating ambition, was superior to that of his neighbour across the border. Now the difference is not so marked, partly owing to the improved English system, and partly to the declension in the teaching of higher subjects in the Scottish rural schools. This falling off is on the eve of being remedied, and the signs of the times point to better opportunities for the Scottish youth once more. But I believe that the best of the Scottish gardeners of the present day, old and young, are quite equal to those of the craft in earlier times. They are as keen, as enterprising, as ambitious to get forward and to excel in their craft as those who went before them. It may be that some of the rank and file are not so good as in earlier days, for there are other opportunities of which the young Scottish gardener is not slow to avail himself. He may, like others before him, go across the border, and many go to America to good appointments. Tea, Tobacco, and Rubber planting entice the energetic to other lands, and park appointments are coveted by the best, to the lowering of the average in the private garden. This average is also depreciated by the poor opportunities for advancement in private employment, and the conditions which too often exist there. The salary of the gardener is undoubtedly too low for the skill he is expected to have and the responsibility of his duties. Most gardeners are under paid, and that and the precarious tenure of the occupation keeps many clever youths fond of gardening from going into it as a calling; some, indeed, saying they would rather go in for something else and take up the garden as a hobby.

Yet, as I have indicated, although the average may be a little lower than before, the better class of gardeners are as good as ever they were—nay, I should say, better. One knows of young men who are filling places which at one time would have been reserved for a man of longer experience, yet these younger men

are doing the work as well, and in a way they could not have done had they not had a true liking for their work and ability to carry it through. One knows of others, too, who are biding their time as foremen and journeymen, and who, when the time for promotion does come, will make their mark in the calling. I have no sympathy with those who praise the old days and depreciate the present, and I feel assured that the Scottish gardener of the present day is still "a workman who needeth not to be ashamed."—S. ARNOTT.

This is a question which can hardly be answered by a simple yes or no; and, perhaps, it is on account of the experience of each one being restricted to his opportunities, and because none of us look at things from exactly the same standpoint, not possible of an answer in all respects satisfactory. The conditions of modern gardening, not only as regards mechanical and other means known to everybody, as well as the methods and fashions of the present day, are very different from those of thirty or forty years ago. To a large extent the garden has become an appendage to the house, and plants and flowers are produced almost solely for the embellishment of its rooms and the pleasure of its inmates, with the result that thousands of plants are now cultivated, many of which last only a few days or weeks, instead of the few dozen specimens of former times painfully waited on, and as painfully inutile.

I have a hazy recollection, which admits of few details, of old gardeners who first saw the light in the eighteenth century. Socially, they were superior to their present-day successors. Individually, the old gardener liked to do his gardening on the sly. Equipped in a tall hat, a broad-cloth coat, satin tie, and spotless linen, and supported by a silver snuff box, he had to be careful of his dignity. His wife dressed always in silk, and his daughters went to boarding schools, and though his income might not show up so well in figures as that of the twentieth century man, it was larger than that of the country school-master, and what his perquisites amounted to no one could say. On Sundays a vehicle dubbed a "nobby" carried the keeper and wife, and he and his wife, to and from the kirk, of which he was almost certain to be an elder. He drank tea and toddy with the neighbouring farmers, and was a not infrequent visitor to the weekly market. After the Great Exhibition in Hyde Park, which he visited with a select few from the neighbourhood, he became more than ever a great man.

As a gardener he had his limitations. Dung-heated frames, even where Pineapples were cultivated, were largely employed. I have seen over a score of lights in not a large place, heated by that sole means. These he forced all his Seakale and Rhubarb by the same means, which entailed much labour, and if it may be said, with not always superexcellent results. The keeping of lawns was also attended by an enormous leakage of working power, so that these two items alone placed him at a disadvantage as compared with the modern. Mildew was not unusual on Grape Vines, and red spider was always expected on the crops which it favours. He was a tremendous fellow for trenching, possessed an unshaken faith in muck, and grew grand Peas and Cauliflowers, while his wall trees were veritable works of art, it being not infrequently the case that they were, or at least part of them were, under the sole care of one man. As a plantsman, he was usually a failure, and those gardeners who did succeed with plants cultivated only a few specimens, of which no doubt they were as proud as they deserved to be.

If one compares the gardener of our time with the bygone type as cultivators, I think the former are much superior. Let me give an instance. Two years ago I visited a large garden managed by quite a young man, and happened on the head of another department, a man who had been about the place for many years, and who was anxious to know my impression of the garden, which I was happy to give as very pleasing. He informed me as a curious fact that the head gardener, an old man, who was there when I visited it previously a quarter of a century ago, on leaving about that time, predicted that no one would ever keep the gardens in as good a condition as he had. Yet in almost everything—certainly in fruit and flowers—there was an extraordinary advance.

I may give another instance, this time of a garden with only a few men, and where the head "works." It has always been famed for its hardy fruits, but I never remember to have seen these better "done" than of late years. The Peaches outside are really wonderful. But hardy fruits may be thought to provide its one only feature; not so. The flower gardening is equal in its way to the other, and vegetable and other things are at least quite as good as formerly.

These are typical cases, and might easily be multiplied. But it may be questioned—Perhaps these young men have increased facilities and more labour? It is a sad fact that, while there are many improved methods, the labour is hardly ever better; sometimes it is lessened to keep down expenses; but considering the amount of extra work that falls on the gardener to overtake, will he, nill he, the ratio of labour is far below the average of former times.

It is possibly on account of inability to cope with this in-

creased labour that the art of training wall fruit trees has almost been lost. At any rate, it is seldom if ever that the shoots of these are as neatly arranged as they were by a former race of gardeners.

I must devote a little space to a discussion of the young gardener. Naturally, there is a large number who never ought to have become gardeners. There is the hopelessly lazy, and the generally incompetent, of whom nothing can be made. But the great majority are anxious to do their duty, and to learn the business to which they have devoted their lives. It is very remarkable that gardeners' sons of recent years bulk largely in the coming race. A country gardener can hardly induce his sons to be anything else. Of these I have had through my hands the very poorest samples of the young gardener. At the same time it is but fair to say that on the average he holds his own, and is usually superior to men from outside. Altogether, I imagine a better type of lad has been entering the ranks—sons of coachmen, gamekeepers, farm bailiffs, master carpenters, blacksmiths, &c. Not a few are hardworking chaps, striving to gain a knowledge of everything connected with their chosen life's work, and thoroughly dependable. Many display great taste in the arrangement of plants and flowers, though nearly all are deficient in the equally important sense of colour, which, by the way, is a deficiency of which they have not a monopoly.

I should be inclined to think that they are little taught the art of pruning, of gathering fruit, and of training fruit trees. As flower garden assistants they lack what one might call training, which is more their misfortune than their fault. Very few know anything of our native flora, a remissness of which they are sure to feel the effect by-and-by, because the upper classes, if not very learned in this and other Nature studies, are sufficiently so to comprehend the total want of it in their gardeners.

On the whole, I should say that the young Scots gardener is holding his own. If space can be found for a few sentences extra, I should like to remark that the literary standing of the present-day gardener compares unfavourably with his predecessor, not perhaps his immediate one. But a perusal of the carefully constructed, thoughtful, and truly practical articles which emanated from such men as Donald Beaton, Robert Errington, and Robert Fish, leaves the impression that the place they occupied as journalists has never been filled. Barnes, of Bicton, too, wrote articles for Loudon, which have never been excelled—clear, terse, illuminating, and original.—R. P. BROTHERSTON.

What is the Present-day Tendency in Laying Out Gardens?

Replying to your enquiry, I am sorry I could not deal justly or adequately with a subject such as you propose in a short letter. My article in the Studio Year Book is the best exposition of it I could give. It is to be published in March, and runs to nearly 4,000 words, with some thirty plans and photographs, and about four coloured plates. As your paper appeals to such a large number of ardent horticulturists, would it not be worth your while to devote more space and expense to this important subject?

I might add that the present day need is more for small gardens than for the princely domains that used to be. Old England is getting to be more and more cut up into small, small, and smaller plots, and the need is an index to the tendency in laying-out. This means that there has to be a greater amount of concentration. Every article, item, or shrub has to be decorative. There must be no sprawling or ill-considered portions. But this is just where, in a short reply, one feels the inadequacy of giving sound, lasting advice. Many people think that by concentration is meant the modern fussiness seen almost everywhere. Spaces that ought to be quiet and restful, such as a green moss carpet under a spreading tree with flowers, low shrubs, and so forth, are "worried" into patterns. In avoiding Scylla the untutored fall into Charybdis. There are some people into whom you cannot instil the comprehensiveness and unity of design. They are an ill-assortment of prettinesses, and such they must remain.—THOS. H. MAWSON.

In reply to this question I should say decidedly that the taste has recently turned more towards the formal and architectural. The returning taste towards the Tudor and Old English style of architecture has probably created the desire for gardens that shall be in keeping with the building represented. This, of course, applies chiefly to the more immediate surroundings of the house. At the same time, strong and increasing desire has sprung up for the beauties of the wild garden. Where the architecture and position are favourable,

many charming effects can be produced by suitable terraces, pergolas, Yew alleys, enclosed Rose gardens, pleached walks, Lily ponds, and bowling greens. All these may be made attractive and take one back to mediæval times. At the same time, improvements of recent times as to individual varieties of flowers and plants may be taken advantage of. Beyond this formal arrangement there is freedom to adopt a more natural style with undulating lawns, plantations, and general park-like treatment.

The increasing national love of flowers, especially when grown in masses under natural conditions and, as far as possible, with natural surroundings, has caused much attention to be paid to the formation of wild and woodland gardens in suitable positions. In country districts this can often be done by selecting some position near to the house and outside the portion set apart for the more formal garden, immediately surrounding the house. Often some piece of woodland can be found suitable for the purpose, and sometimes a small stream with rocky banks and natural pools of water. With such material to commence with it is perfectly easy to form woodland walks leading to groups and masses of shade-loving plants with water and bog plants in suitable positions, and, on emerging to the more open positions, the rock and alpine garden may be formed; whilst in the still more open spaces the wild garden can be arranged.

Here endless pleasure may be obtained by carefully massing and grouping flowering trees and shrubs, Heaths, rambling Roses, and hardy flowers; in each section of which we now have such a wealth of variety from which to select, giving endless change of colour and shade in flower and foliage from early spring to late autumn, and even during the months of winter many features of interest may be obtained.

Where no suitable woodland exists near the residence the necessary condition can usually be formed, but this, of course, takes a longer time to develop and mature. There is undoubtedly at the present day increasing artistic taste and a desire to draw on the wealth of material at hand in order to surround the home with all the beauties and attractions of Nature, brought together from distant climes to add to the beauties and charms of our favoured isle. When these are carefully and skilfully designed and arranged I believe it possible to procure more pleasing and lasting effects here than can be produced in any other part of the world.—JOSEPH CHEAL.

POTATO DISEASE.

Earl Carrington, in the House of Lords, replying recently to Lord Harris, observed that black scab was first observed in 1901, and it had since spread over the whole of North-West England and North Wales. It was prevalent in Lancashire, and cases had been reported from Scotland. So far it had not appeared in the South or East of England. The department was very sensible of the danger of this new Potato disease, and it was considering the advisability of issuing an order to give power to deal with the disease. The noble earl added that the recent outbreak of foot and mouth disease in Scotland, had, they believed, been entirely confined to one area, and almost all the cattle had been already slaughtered.



Crocuses in a London Park.



Crocuses and Spring Flowers.

It would not be spring without the Crocuses, and we have introduced them to the pages of our Spring Number. Every year there are millions of Crocus corms buried in the earth, and the Crocus corm is a capital investment! It thrives anywhere, and never, or very seldom at least, fails to increase, and to eventually throw up a flower. We also illustrate a little rockery, gay with welcome heralds of the new-born spring.

Phlox Nelsoni.

Spring Phloxes are delightful little rock plants, and were they better known and more cultivated, our spring gardens would be much more beautiful even than they are now. They give us sheets of sharp-leaved foliage (I am referring to the subulata or setosa section alone, just now), and these are covered for weeks with delightful little flowers, generally so thickly set over the plant that hardly any leaves are to be seen. Trailing over a stone, they are fascinating in the extreme. There are many of these beautiful flowers now, some of them bearing such attractive names as Sylph, Brightness, and so forth, but that I mean to speak of at present is called by a less attractive appellation, being *Phlox Nelsoni*.

I daresay many think that the name was given to it in honour of the hero of Trafalgar; but it really recalls, not the great admiral whose deeds thrill the heart of every Briton, but one whose victories were won in more peaceful scenes, and who was renowned among his contemporaries for his skill in horticulture. This was the late Rev. J. G. Nelson, of Aldborough, to whom we owe some beautiful flowers, none more beautiful, however, than the charming little plant under notice now. It will long keep green the memory of this true florist among lovers of flowers.

Phlox Nelsoni is less diffuse in its growth than many of its allied plants. It makes a close-growing, densely arranged mass of sharp-pointed, fresh green leaves, and spreads over the ground less freely than most of the others of its kind. It is as dense in its flowering, for it covers itself absolutely with its beautiful little white flowers, which, a little way off, look like a patch of snow left with us after the disappearance of the most of a downfall of that pure element. Very beautiful, too, is it when seen close at hand, each little flower being a picture in itself. This plant is easily increased by means of cuttings, struck under glass, some preferring to take them off with a heel of the old stems, and others using short cuttings of the young growths. The latter strike easily with a little heat, but the former affords an easier method for those who put them in under a handlight, or who have only an unheated house. A soil of loam, leaf mould, and sand made a little firm is excellent for *Phlox Nelsoni*, and a sunny position seems appreciated by this beautiful little plant.—R. N.

The Spring Satin Flower.

One of the favourite flowers of the early spring with those who know its beauty is the Spring Satin Flower, *Sisyrinchium grandiflorum*, a lovely little plant of both graceful habit and charming flowers. It is almost sufficient to say that it belongs to the Natural Order of the Irids to attest this beauty. The general height of *Sisyrinchium grandiflorum* is about eight or nine inches, but it may occasionally be met with a little taller, when it is cultivated in a moister soil than we usually find it in. At any stature it is highly pleasing, and when we see its grassy leaves and purple flowers appearing above the snow, as sometimes happens in certain seasons, we can appreciate the beauty of the contrasted white of the snow, the green of the leaves, and the purple of the blooms. But Nature even seeks to mimic in the Satin-flower the colour of the snow itself, for there is in existence and in commerce a charming white variety called *S. grandiflorum album*, which is only a trifle less easy to cultivate. This flower thrives well in a rather light soil with some peat or leaf soil among it, but it is not fastidious. On a ledge of the rockery or near the front of the border it will give much true pleasure. It hails from the United States.—S. ARNOTT.

MARKET GARDENING NOTES.

POTTING BORDER CARNATIONS.

These, a hardy line, are at the present being raised in warm houses, to be hardened off as they get established. This is to meet the trade demand which is very great for the early spring orders. In suitable compost in 60's or 48's, as required, the growth is now very rapid. Keep them true to name, for though the prices are not so high as in former years, the demand is for named varieties. The potting soil being right, very little water is required until the roots get into the new soil.

CALADIUM ARGYRITES.

These are scarce with the many growers; in fact, orders are being refused. This is the propagating season, and as bulbs are now throwing up, every growth should be taken off with a portion of the old bulb. Those who excel in the culture, and have good soil and plenty of heat, produce a full-sized tuber in one year. Old as this variety is, it is as much in request as ever. Already enquiries in the market are being made for the cut leaves, a sure sign of the season.

RHODODENDRON, CUNNINGHAM'S WHITE.

The first pot plants in flower I saw to-day; a very pretty sight. This is undoubtedly the best white early forcer for pot work. For florists' purposes it is always in request. It is very fragrant, and being fairly hardy, it makes a good filling-up plant, suitable for entrance halls, lobbies, or fire places. Roots can be reduced to the smallest, the buds being there, and it only being a question of water and moisture to carry it through the season.

STOPPING CARNATIONS.

Though this refers to the present 48's stock, it also applies to the larger stuff. If for single stem, no stopping is required; but if for the double or treble growth, do it early. Varieties differ, but the majority at the height of three or four inches, as they get established, may be stopped with advantage. The rapid progress being made in the culture of the popular Carnation is also meeting with an equal amount of demand, due, no doubt, to a better general knowledge of the requirements, which are simple.

ROSE, MADAME N. LEVAVASSEUR.

Introduced in 1903, this is now well known. For pot work, in 48's, it has no equal; dwarf and perpetual, free in flower and early, it is now in good supply. A great point with this is to keep it clean. At the season's close some may go out cheap, but it is still one of the best market plants.

HYDRANGEA GRANDIFLORA PANICULATA.

This is grown in different batches, the last lot now being potted up. A batch to-day I saw just breaking, which had practically been cut down to one or two eyes—a new system to me. The best growers give 4 in to 6 in of wood from these—plenty of flowering wood. A vexed point, I know, is the cutting back, and while from experience I am well aware dwarf plants are useful, at the same time large and more numerous heads of blooms are also in request. Covent Garden growers each aim for their own trade, and prune according.

STRIKING GOLDEN PRIVET.

Always in fashion, with a very good market sale. A stock should now be struck for next season. Cuttings put in shallow boxes of the usual market size hold 100. Place in cold frame, just giving sufficient water to keep alive for the next month. As they strike, by midsummer they can go out in the sheltered borders. Good for pots, small and large, as also for the usual box and bed work, they are used by the thousand. Select good coloured cuttings. These retain the colour, and are used largely.—STEPHEN CASTLE.

Market Methods at Covent Garden.

The interest of the public in matters concerning the production and distribution of fruit, flowers, and vegetables has become so great that retailers are continually questioned as to the places of origin, principal markets, and other details concerning the complex methods by which these popular commodities are brought to the notice of the consumer. The replies invariably have the effect of leaving those in search of information in a somewhat dissatisfied state of mind as to why those whose business it is to supply them with fruit do not endeavour to purchase direct from the growers, thereby dispensing with the services of the middleman, and, as would appear at first sight, benefiting both the producer and the consumer. In the cases of foreign and Colonial fruit, on which we are so largely dependent, the idea of a retailer attempting to communicate with growers in the various European countries, America, Canada, Australia, and South Africa, is so



Spring flowers.

Anbrictia, *Alyssum*, *Genista hispanica*.

utterly absurd and impracticable as barely to merit reference, except as an illustration of the principle that central markets for importing and distributing are indispensable.

Retailers themselves are not by any means anxious to get into direct communication with growers, as they are fully alive to the advantages of the market system. It must be mentioned, however, that there are exceptions with regard to growers, viz., those who bring their produce to market, and therefore act as their own salesmen; but the fact of their coming to market brings them within the scope of distributors in the recognised centre. So keenly do they appreciate the principle of having their goods distributed through the most advantageous channels, that whilst themselves selling outdoor fruits, they will hand over to the care of hothouse specialists their Peaches, Nectarines, and other choice fruits, willingly paying the salesman's commission, although they occupy stands in the same market. Were it not for the efforts of Covent Garden our wealthy American visitors, who fill our large hotels in the summer, would not be so admirably catered for. Individual retailers could not attempt to supply their wants without the co-operation of the leading wholesale houses, who very often have to incur serious losses through miscalculating the strength of the demand—in which case the retailers and public enjoy the advantages of cheap fruit.

This, however, may not be supposed to apply to home-grown fruits. Now that the cultivation of the best fruits within a radius of a few miles from London is conducted on a gigantic scale, the average consumer is inclined to jump to the conclusion that if the retailer were placed in direct communication with the producer it would be beneficial to his pocket. Nevertheless, the case is quite the reverse. Were it not for such places as Covent Garden, the purchaser would search in vain to procure his fruit "bon marché." The retailers themselves are the first to admit this. The question of finance would be one of extreme difficulty. The principle of central markets is essentially sound, otherwise the market-places in every little town in the United Kingdom would have been discontinued years ago. Furthermore, admitting the proximity and accessibility of London, how can a scheme be devised by which a grower is to know when and where to find in this vast metropolis a particular individual who is desirous of buying the particular fruit he has for sale? The market is an indispensable channel for distribution.

The market system has the advantages of ensuring regularity of supplies, and the mere fact of there being a recognised centre for the disposal of choice products is sufficient inducement for cultivators to experiment with new varieties, well knowing that anything sent thither is bound to be brought to the notice of every possible purchaser. In times of scarcity and in times of plenty the retailer can judge the value of the products, and the system thereby benefits the grower to a very large extent. The caterer for exclusive patrons, to whom the costliness of an article is no deterrent, and the purveyor of popular fruit at low prices have an equal chance of seizing their opportunity. In each case the grower gets the value of his produce, and all classes of the public, from the extravagant epicure to the most economical of housewives, are enabled to make suitable purchases.

It is only the inexperienced and uneducated grower who hopes to build up a permanent business by attempting to place

his fruit direct with the retailer. This could only be achieved by his undertaking to supply all kinds of fruit, more especially the particular variety in special request at any given time—and this no grower could hope to do. The skilful and successful grower does not attempt it. The most successful and prosperous growers in England are those who, having commenced in a small way, have continued to be guided by the advice of their salesmen, and attended to their business at home, relying on the capacity and energy of the London market man to increase the demand for their products. The result has been that the extent of their hothouses has increased from yards to miles. British-grown fruit has met with universal appreciation, British labour has been largely employed, and the public have been benefited by the very methods they are inclined to condemn.—("Daily Telegraph.")

Wall Gardens.

In the case of some rocks in Nature, there are found a number of plants that have got there by chance. This has induced what is known as wall-gardening, which, in most instances, signifies an arrangement of blocks of stone or other material in a precipitous wall-like manner. In the precipitous rocks of Nature we find in the crevices, rents, indents, and on ledges a variety of plants, both ligneous and herbaceous. It is therefore easy to imagine that the number of plants that could be grown in similar artificially-formed positions is very great. But the careful observer is struck by the plants growing much better on the native rock, or ruin, or old wall than on the imitations made for them. The reason for this is that the wall is generally made so loose and open in texture that, though soil and other substances may be introduced, the plants perish from drought. On the natural rock, ruin, or old wall, there is such an accumulation of debris as to insure continuity and compactness, capillarity having due play; hence the moisture as it occurs between the stones or other solid material is not only prevented from rapidly escaping, but is also replenished from the subjacent and firm textured parts. In parts of the country where ferns and other plants grow on stone and even brick walls, a lesson in rock-wall construction may readily be had.

I have seen rock-walls constructed in places as objectionable to neighbours and the public as they are unsatisfactory to the proprietors in results. The craze for "wall gardening" leads many to erect them where there is no real need. The purpose should be clear, such as a support for a bank, a boundary, or as a screen. In the latter case the exterior should not be such as to offend the eye of the looker-on from outside. But there are positions where no objection can be taken to the rock-wall, and there is no question of some persons having a taste for wall gardening. The wall for this purpose should be constructed of stones of fair size, the wall being what is known as double, that is with two faces, so that there will be a space between, and this filled with soil. The stones should be placed with an upward tilt, and some of these should be "throughs," so as to bind the two walls together. No mortar should be used. Of course, there must be plenty of crevices, and even ledges formed by the projecting stones, and the backs of these recesses should be of stone so placed as to prevent the soil falling away from the cavity between the two walls. The wall should have a somewhat wide or broad base. The interior of the wall must be solid from the earth to the top. A large percentage of grit and not much, if any, vegetable matter should be used. The wall should be topped by stones in open order, similar to rock-work. Planting is sometimes done as the wall is built, but in any case the proper consolidation of the soil must be effected as the work proceeds, and then the planting can be effected at a proper season—September to April in mild weather. Walls as supports to earth banks are, however, the beau ideal.

In some instances it is necessary to build the wall with one face smooth (built in mortar), and the other face rock-like. The rock-face, of course, has crevices and pockets, and there is a cavity between the walls for holding soil, proper attention being given to binding the two sides or faces, and in this case also the wall should be rock coped, so that the rainfall may enter at the top and trickle down in the soil in the cavity. Burrs are sometimes used for the rock-face, but they are not so sightly as stone, and bricks are still worse. Indeed, there are many ways of forming ledges, crevices, and pockets, even in existing walls or those with smooth faces, but reference to these and also wall gardening generally must be reserved.—G. A.

Calcium Cyanamide for Plants.

In Italy there has been established a factory for the production on a large scale of nitrogenised products obtained by the fixation of atmospheric nitrogen. The new process employs hydro-electric power of 15,000 horse-power, and the product has been called by its inventors calcium cyanamide. As a plant fertiliser it produces wonderful results.

Our Veterans' Gallery.

No. 1.—Mr. HARRY J. VEITCH, V.M.H., F.L.S.

JN this series, the first of which is placed before our readers, it is the intention of the Editor to gather up and save many of those precious reminiscences of our veteran horticulturists that otherwise would never be preserved. The task is probably a delicate one, and we realise our many drawbacks and limitations in facing the work; but we are prompted by a sense of its importance, and encouraged because we regard it as a duty. The veteran whom we have first invited to the ordeal of an interview, and who was the personification of kindness when he received our representative, comes of true-blue gardening stock, and not only to the juniors among us, but also to the seniors, the name of Veitch, as nurserymen, seems to loom large upon the background of the past.

Harry James Veitch was born at the paternal home at Exeter on the 29th of June, 1840, the year of the establishment of penny postage—"so that I came cheap," he says with a smile. When schooldays began, he started at 6.30 o'clock in the morning, and had to walk one and a half miles, usually keeping an ear upon the Cathedral bell, which rang at five minutes before the hour of attendance at seven. But of his grammar school experiences Mr. Veitch has no warm words of praise; it was little he learned there. Then followed sixteen months at Altona-Hamburg, and his appreciation of the methods and men in the educational seminary there is unqualified. From Consul Schiller (commemorated in *Phaenopsis Schilleriana*), who resided at Altona, he received the greatest assistance; nor does he forget the help and sympathy that were bestowed by the Booths, nurserymen, there, the last of which firm died only the other day. They had migrated from Scotland to Germany, and were very successful.

Returning from Altona, he, about a year later, proceeded to Paris in order to equip himself in the French language, and to lay in a store of useful knowledge by a sojourn for six months in the establishment of Messrs. Vilmorin, then, as now, the foremost of the French seed houses. Being now between seventeen and eighteen years of age, it was time to make a start by his father's side in the Chelsea business, which had been purchased from Messrs. Knight and Perry on the 16th of April, 1853, a date which is clearly remembered because it was "Grandfather Gould's" birthday—his maternal grandfather. At that time, fifty-five years ago, the Veitchian outdoor nurseries covered twenty acres of the land at Battersea. The latter was soon given up, however, the fruit trees being transferred to new grounds in the King's Road, opposite the Chelsea nursery, which later on were again transferred to Southfields, Fulham, which was in continued occupation until seven or eight years ago, when sixty acres of land were purchased at Feltham, Middlesex. The Coombe Wood Nursery was begun near Kingston in Surrey in 1856. Much stock was drawn from the old Exeter grounds for this purpose, the grandfather of Mr. Harry J. Veitch being still in business there.

Of course, one took occasion to ask the subject of these notes if West London had altered much since he first knew it. If all our readers knew the districts well enough it would be interesting to relate how successive lines of streets gradually grew up until, from having an almost urban neighbourhood at the start, the headquarters of Veitch's became swamped in a sea of houses. No, not swamped; Veitch's is still Veitch's!

Mr. Harry started work at Chelsea as "office-boy"; at least, so he says, and at any rate carried the letters to the post. Instead of being able to carry them to the nearest pillar-box, now only a few yards off, he had to run to the office at Sloane Square, over a mile away, which was the nearest in those days. The direct route to Paddington was by Love Lane, close against the nursery, the toll, moreover, for passing a certain gateway there being sixpence each time! Over the main bridge toward Coombe the toll was also sixpence—at least for vehicles, and one does not wonder that the nursery carts were sent round by Battersea, because that way only cost twopence.

Mr. Harry Veitch was inducted to the seed and office departments of the business while his elder brother, John Gould Veitch, gave his attention to the plant section. John, however, wished to travel, and the greater part of the nursery supervision fell upon Mr. Harry at an early age, for business often took the father from home, advising gentlemen upon the planting of their places, and in other kindred matters. Being the eldest son of his father, the then head of the Chelsea firm also frequently visited the Exeter nursery. Among the clients of those earlier days was Lady Dorothy Neville, now over eighty years of age, but who is hale and hearty, and still attends the Royal Horticultural Society's exhibitions.

The Prince Consort was a regular quarterly visitor at Veitch's, to see the new hardy plants that were then, as now, constantly being added. The Prince was a lover of hardy flowers, and a great patron of horticulture, and no section of her late Majesty's subjects felt or mourned his untimely decease in 1861 more than the gardeners of all degrees. It was through the Prince Consort that Veitch's were permitted to present the bouquets at Royal weddings from time to time. The occasion of the marriage of the Princess Royal (afterwards Empress Frederick of Germany) was the first time that Mr. Veitch remembers the firm receiving the Royal command in this matter.

In his reminiscences Mr. Veitch also alluded to his botany lectures under Dr. John Lindley at University College, at the conclusion of which a certificate to his merits was awarded. The young nurseryman also sat under Thomas Moore, A.L.S., curator of the Chelsea Physic Garden; and drawing lessons were received at the hands of the late Mr. W. S. Colman, some of whose sister's beautiful picture studies in flowers adorn the walls of Mr. and Mrs. Veitch's London home at Redcliffe Gardens. Dr. Lindley was a close friend of the elder Veitch, as Sir Wm. Hooker was of the grandfather at Exeter.

Still advertizing to his earlier recollections of the nursery, our interviewer inquired whether his host had ever come directly into contact with Glenny, Paxton, or Beaton, among others of the latter - time celebrities. Sir Joseph Paxton was a caller in the early days at the Veitchian emporium, and purchased quantities of Australian plants for the Crystal Palace when it was being furnished. The Antipodean hardwoods being then in great favour; in fact, they, with zonal Pelargoniums, were in the height of floral fashion. Curiously, our veteran's first visit to London was promoted by the Great Exhibition of 1851, in which Joseph Paxton's plan-drawings had been put into practical form in that huge temple of glass and iron. For his successful part in that great achievement the Chatsworth gardener received a knighthood, and in due course a seat in Parliament, for he won his place as a Conservative member for Coventry. "It was commonly said," observed Mr. Veitch, "that no matter on what subject Sir Joseph spoke in the House, he always got back to the Crystal Palace; and the members were generally prepared to cough him down!" That was his "King Charles's head."

As to George Glenny, whom the writer was informed was not a bred florist, yet had a nursery at Fulham, Mr. Veitch only once met him. He had gone to him for *Hepaticas*, and found Glenny rather impatient, snorting out—"Hepaticas! Everybody seems to be 'Hepatica mad.'" According to the late Richard Dean, the National Floricultural Society (which gave place to the Floral Committee of the R.H.S. in 1859) was established in 1851, "out of a feeling of distrust at the awards made under the influence and direction of George Glenny." The latter was at the height of his popularity between 1830 and 1850, and furiously assailed the N.F.S. The impression remaining of Donald Beaton was that he was a strongly self-opinionated man.

Unlike his brother John, Mr. Harry Veitch did not travel abroad. Mr. John Gould Veitch visited China and Japan in 1860, and it is believed that he and Robert Fortune were upon the same steamer from China to Japan. At any rate they were both out together plant collecting, and John Veitch scored on one auspicious occasion by sending home the first consignment of the Golden-rayed Lily (*Lilium auratum*), which the firm grew, flowered, and displayed to a dazzled multitude at one of the South Kensington Shows in 1863. Needless to say, the bulbs brought a pretty price, namely, ten guineas each. "We could not get that amount to-day," said Mr. Veitch, resignedly. On the same day they also exhibited for the first time that gem in waxen purity, the white *Lapageria*. Standish, of Ascot, acted as the introducer of many of Fortune's new shrubs, among them the green *Aucuba* and the male form of *Aucuba*. Then in 1864, two years after his return from the East, John Veitch again set out for foreign parts—for Australia and the South Sea Islands, making home once more in time for the great horticultural exhibition of 1866. He died in 1870, one year after his father, in his thirty-second year. He introduced from Japan numerous conifers, also from the

South Sea Islands *Crotons*, *Dracenas*, and other plants, not omitting the *Pandanus Veitchii*, one of the most useful plants we have for decorative purposes. The parent, be it noted, was also comparatively young at his death—only fifty-four years. Though struck down so early, Mr. Veitch, senior, had already built up a large and increasing business. He and his father before him had sent out plant collectors, and by these agencies had endowed British gardens with floral treasures that helped to set the crown of highest honour upon England as the land of horticulture. Mr. Veitch père was the epitome of energy, often working until two o'clock in the morning, while regularly prepared for the day's work at six o'clock. Truly, "there is no Royal road to learning"—or success. He ultimately died from the effects of a chill incurred after being actively engaged in arranging a collection of *Hollies* for the show of '66. From this he never quite recovered, and the knowledge that he possessed a weak heart, together with a mistaken medical regimen prescribed for him, bore him down in three years. Thus at the age of thirty, Mr. Harry J. Veitch was left in sole charge of the great business, whose immensity—and we use that word advisedly—may be gauged from one pertinent fact alone, that at that time and for many years afterwards an average of 400 private gardeners each year entered the nurseries to await for and pass to situations.

"I wish I knew the names of all those who have gone through our place"; this in answer to the writer's observation that he was once "on the staff."

At the deaths of his father and his brother, being thus left alone, Mr. Harry brought into the business his brother Arthur, who had hitherto been in Messrs. Rothschild's office in the City. This was in 1871. Nine years later, Arthur Veitch died.

The Coombe Wood Nursery had been begun in 1856; and feeling that a seed-testing and seed-growing "farm" was wanted, Mr. Veitch secured the Langley grounds, or at least the first portion of them in 1880. These are near Slough, on the north side of the Great Western Railway, and it is here also that a large amount of the fruit trees are now cultivated. The fruit tree section of the business is the one that has developed most within recent years.

Mr. Veitch recalls the original chief nurseries around his own, at the period of fifty years ago. First stood Lees of Hammersmith, where Olympia now stands. Descendants of the firm of John and Charles Lee still

carry on business at Ealing. Then there were Osborn and Sons and Dancer, both at Fulham; Hugh Low at Clapton; Rollisson's of Tooting; Arthur Henderson and Son, of Pineapple Place; and E. G. Henderson's of St. John's Wood. The latter's place is still kept in remembrance by the reporters of cricket at Lords, who occasionally employ the phrase, "He bowled from the nursery end." Chandler, of Camellia fame, was also still in existence, but he eventually took charge of Messrs. Veitch's little private herbarium and collection of drawings. Mr. B. S. Williams, of Holloway, had only just started the Paradise Nurseries, having previously been gardener to Mr. Robt. Warner.

At Slough, Mr. Charles Turner also had taken to commercial floriculture, and was undoubtedly one of the best florists of his day. Every fine point of a florist's flower was known to him. He was of a happy, cheerful temperament, fond of music, and while busy staging flowers at the exhibitions, was generally humming a tune. As to John Standish he was a jolly old fellow, who liked to treat his friends well. Carters in Holborn had been there since 1837; and there were also the firms of Waterer and Godfrey, now Anthony Waterer of Knaphill; also John Waterer and Sons of Bagshot; the two Messrs. Paul; and the old-established firm of Rivers and Son at Sawbridgeworth, with others further away. Slightly later in time came the businesses of Mr. John Laing, who joining Messrs. Downie and Laird, established the Stanstead Park Nursery in 1860, the partnership dissolving in 1875; and the late Mr. John Peed also started business in 1860 at Brixton; while in the King's Road, Chelsea, the late Mr. Wm. Bull secured his business in 1861.

The name of Peter Grieve will be fresh in the minds of older readers. He was gardener at Culford, Bury St. Edmunds, and was foremost in raising variegated and tricolor



Mr. Harry J. Veitch, V.M.H., F.L.S.

Pelargoniums. Messrs. E. G. Henderson and Sons sent out his novelties as they appeared, and the variety Mrs. Pollock, still largely grown, was sold at three guineas per plant. Following upon Grieve, John Wills became a great luminary. Through the agency of the late William Bull, Wills became manager to Mr. Wimssett, whose nurseries lay opposite to Bull's. Eventually Wills started business as a floral decorator at South Kensington, where he was joined by Mr. Segar, who had also hitherto been a professional gardener, and the business still flourishes. Mr. Segar is still living, and very active.

But we must hasten on. Mr. Veitch has a distinct recollection of his first night out of bed. This was when he, as a youth, journeyed with his father and brother to the first Crystal Palace Show on the 2nd of June, 1855—the earliest of a long series. One of the best of the new things about that time was *Cissus discolor*, which was carefully screened from probable handlers under a big bell-glass the first time it was exhibited. Mr. Veitch has had his share of shows since then. He visited most of the great Continental exhibitions until ten or fifteen years ago, and hopes again to see the forthcoming quinquennial at Ghent. Arising out of the visit of English horticulturists to Amsterdam in 1865, came the great international show of 1866 at South Kensington. The Dutchmen had treated their English confrères so very hospitably that the spirit of emulation, as well as courtesy, was stirred, and the late Dr. Masters was "put up" to invite the Dutchmen over. So everyone had to set to when they got home and make all haste to prepare a fitting reception and triumphant exhibition. We must pass over the scenes of that magnificent gathering; only two representatives of the executive committee remain, and Mr. Veitch is one of them. Gibson, who made Battersea Park, laid out the exhibition grounds, which were situated exactly where the Natural History Museum now stands. The South Kensington Gardens were laid out in 1860 from Nesfield's plans, but the story of them and that stormy period of nearly thirty years, until 1887, when they were abandoned, must be told at another time. Eyles, who was the superintendent of these gardens, was one of Paxton's men; and likewise Henry Milner, father of the late well-known landscape gardener.

Mr. Veitch remembers very distinctly meetings which were held about the years 1858-59 in the old dwelling-house in the Chelsea nursery, and which resulted in the formation of the R.H.S. Fruit and Floral Committees. These meetings took place in Mr. Veitch's father's dining-room, being attended by Dr. Hogg, Thomas Moore, George Eyles, and J. Edmonds, who was then gardener to the Duke of Devonshire at Chiswick House, and for some time a member of the R.H.S. Council. The first chairman of the Floral Committee was the Rev. Joshua Dix, whose fatal attack of illness, it will be remembered, took place whilst he was reading the burial service at the grave of Mr. John Gould Veitch.

Mr. Veitch joined the R.H.S. Council in the South Kensington days, and with the exception of a short interval, has had a place on that body ever since. He has also been one of the chief supporters of the Gardeners' Royal Benevolent Institution for many years, and during twenty-two years has been its treasurer. In these present days our veteran is looked up to as the chief corner stone of this splendid charity. Naturally, he has also taken a warm interest in the Royal Gardeners' Orphan Fund from the date of its inauguration in 1887. It might now be imagined that in his private capacity, a gentleman so full of responsibilities would avoid others; but all his cares and manifold interests bear lightly upon him whom the horticultural world reveres. Mr. Veitch is Churchwarden of St. Luke's Episcopal Church, Redcliffe Gardens; and at his own expense maintains two L. C. missionaries in Chelsea. Nothing, we are sure, gives Mrs. Veitch and himself more pleasure than to be entertaining a picnic party of poor mothers and children at their beautiful garden and rural home at Burnham, near Slough. In 1900, Mr. Veitch retired from the directorship of the business, but unfortunately, after pursuing several happy years of well-earned leisure, owing to the early decease of his nephew, James Herbert Veitch, he has had to resume the trammels of office routine.

But already we have outrun our limit, and not one half of the reminiscences have been tabulated! What of all the Veitchian collectors and of the endless succession of beautiful plants they sent home; or of those equally wonderful artificially-raised hybrids from the hands of Dominy, Seden, Heal, and others? We must excuse ourselves from entering upon this portion of the recollections, and direct the inquirer to the late James H. Veitch's "Hortus Veitchii," a sumptuous quarto containing a history of the Veitchian nurseries, their famous introductions, their collectors, and their hybridists. Mr. Harry J. Veitch, however, was especially sensible of the great assistance rendered to his firm forty years ago by Mr. G. Ure Skinner, who collected quantities of *Barkerias*, *Lycastes*, *Odontoglossums*, and other orchids native of Guatamala and tropical America. Mr. Skinner was a South American merchant, visiting parts of that continent for thirty years in succession. His portrait was presented by Mr. Veitch, and hangs in one of the rooms at the Royal Horticultural Hall.

Gleanings.

Preparing Museum Botanical Specimens.

The "Kew Bulletin" for February contains some interesting information in an article by Mr. J. W. H. Trail on "Museum Preparations." Anyone that has attempted the preserving of botanical specimens in spirit will know how difficult it is to retain, in very many instances, the natural colour of the specimens being dealt with. This difficulty has been overcome by Mr. Trail by boiling the specimens in a solution of acetate of copper, washing the plants after boiling them and then placing them in the preservative. One or two minutes' boiling suffices for green seaweeds and submerged parts of vascular plants.

The Hardy Fernery.

Sickly ferns may be turned out and examined. In shady positions in gardens under north walls, or to shadeward of trees, but not immediately beneath them, hardy ferns do well, either in raised rockeries or flat beds. The soil should be a good open leafy compost for preference, but most kinds do well in good garden soil provided the position be not too dry. Protection from rough winds is essential, and given plenty of moisture in the soil, a good deal of sunshine is withstood with impunity, especially on rockwork where the crowns themselves are shaded by the stones. The rocks, or rock substitutes, should be porous; flints and clinkers, the latter especially, should be avoided, and in point of fact no material is more congenial than the rough misshapen clumps of brick stuff known as burrs, provided the brick features be eliminated by means of a hammer. Where red sandstone is available the rockery maker has the ideal at his command, in harmony of tint and congeniality of Nature.—D.

Coleus thyrsoideus.

This charming winter-blooming plant is well worth growing, as the colour of the flowers (a lovely shade of blue) is very scarce during the winter months. For conservatory and greenhouse decoration it is equally useful, and it can be grouped with other subjects. It also lasts well in the dwelling house. One method of cultivation is to take cuttings as soon as procurable after the old plants are out of flower, and grow them on through the summer in a cold frame. The plants are pinched to obtain several flower spikes, but they seem liable to lose their lower leaves when limited to small pots. Another method is to plant out the old stock in the summer, when they make good specimens, and lift again in September. Yet another good plan is to keep a few old plants for stock, and take cuttings in August, propagate in a cold frame, and grow on quickly in a light airy house, and keep near the glass, in a temperature of about 50deg by night. Such plants make nice stuff in 60's or 54-sized pots, and retain their foliage fairly well. Suitable soil consists of loam and peat in equal parts, with sand to keep it porous. Messrs. James Veitch and Sons cultivate this plant splendidly, the spikes being broad as well as long.—H. G.

Propagation of Horse Chestnuts.

Horse Chestnuts are among the most beautiful of flowering trees. They are derided by some, but it is by those who have seen them planted in unsuitable places. They need coolness of the soil, such as that of a lawn; and if in a half-shaded place, so much the better. Near lakes and other large bodies of water they thrive admirably. The common species of Horse Chestnut, writes Mr. Meehan in the "Florists' Exchange," are easily raised from the nuts, which should be gathered as soon as ripe and sown at once, covered lightly with leaves first, then a light covering of soil, or they may be preserved until spring by placing them in a box mixed with sand, put in some cool building, or even buried up outdoors until sowing time in spring. Varieties have to be propagated by budding or grafting them on the common European Horse Chestnut, though perhaps our American species would do as well, but better stick to the European if the other has not been tried. Even the beautiful red flowered Horse Chestnut has to be increased in this way, as it seeds so rarely that dependence on the seed plan for propagation would give but few plants. A popular way to increase these Chestnuts is to pot a lot of seedlings in spring and graft them under glass in late summer; or it can be done by winter grafting, as so many other trees are. A great many of the choice kinds, such as the double flowered and the red flowered, are increased by budding, the work being done in summer. When this method is contemplated the stocks should be watched closely previous to budding them, as the growth of the Horse Chestnut is soon over, and the bark becomes too tight to lift to receive the bud. July would see some of the stocks in condition to receive the bud.

Stove and Greenhouse Plants.

Hippeastrum procerum.

No doubt owing to the uncertainty of its flowering, this remarkable plant is seldom met with in gardens. When flowering plants are obtained it is almost invariably, if not always, from imported bulbs. The Kew plants, one of which is at present flowering in the Begonia house, were recently imported from Brazil. *H. procerum* was found by M. Binot in South Brazil. He forwarded plants to France, where it first flowered in 1863. To Dr. Rayner, of Uxbridge, belongs the honour of being the first to flower the plant in this country in 1870. Under the name of *Amaryllis Rayneri* a figure of this plant is given in the *Botanical Magazine*, tab. 5883. The fact of its having previously received the name of *H. procerum* in France was apparently unknown at the time to Sir Joseph Hooker.

In habit the plant is very distinct from that of *H. equestre*, the species on which the genus *Hippeastrum* was founded. In appearance the plant is more like a *Crinum* than an *Amaryllis* or *Hippeastrum*. The bulbs are flask-shaped, having a long fleshy neck; under cultivation it is evergreen. The colour of the flowers is a delicate mauve-blue, the ground colour of the throat is white, spotted with mauve-blue. The figure in the *Botanical Magazine* is misleading in respect of the colour. The number of flowers on a scape varies, that at Kew has five; double this number are said to be sometimes produced. Efforts have been made to obtain a cross with this plant and the garden *Amaryllis*, but so far, I believe, unsuccessfully.—O. K.

Vegetables.

Potato Trials at Wisley.

Since the establishment of the Royal Horticultural Society the work carried out under its auspices has continuously increased. During the year 1907 exhaustive trials were conducted in connection with several kinds of vegetables, as well as with popular flowers. At this season of the year Potatoes claim a large share of attention, and all who are interested in their culture—and who is not?—will do well to study the results of the Potato trials conducted at Wisley last year, and published in Vol. XXXIII. of the society's "Journal." No less than 128 stocks of Potatoes were sent to the society's gardens, and tested in the trials. It is recorded in the report that "more disease appeared than in any previous trial"; this, notwithstanding the fact that the soil at Wisley is sandy and porous. We know from experience that disease was rampant last year among Potatoes growing in stiff soils, but in light soils the crops generally were good, and not, as a rule, seriously diseased, unless growing in low positions, or lifting was unduly delayed. Experiences in this respect were, however, very diversified last year, probably owing to the fact that some districts were more favoured than others by sunshine, although the season will long be remembered as a damp and cold one in almost every locality in Britain.

Considering then, the unfavourable conditions which generally prevailed, the trial at Wisley brought out one highly gratifying and welcome point, viz., that several varieties were quite free from disease, although growing between rows of diseased ones. In addition to this they produced good crops of tubers of fine clean appearance, and were therefore ordered to be cooked. The results in regard to the point do not seem to be recorded, but, at any rate, those which withstood the disease under such adverse conditions are worthy of the attention of all growers. They are, therefore, given below:—*Dreadnought* (Kirk), white, round, late; *Favourite* (Dobbie), white, round, midseason; *Leonardslee Favourite* (Cook), white, flat, rounded, midseason; *Longkeeper*, yellowish-white, flat round, late; *Massey's Leader*, pale yellow, flat kidney, midseason or late; *The Cardinal* (Dobbie), red kidney, midseason (a fine show variety); *The Colleen*, white, tinged with pink, flat round, late; *The Forester*, straw colour, flat round to kidney shape, late; *The Provost*, white, round, midseason or late.

It is interesting to note the behaviour of older and well-known varieties when tested against so many others as in this trial, and it must certainly be conceded, especially among early varieties, that many old favourites have fully held their own. *Ashleaf* produced a moderate crop, free from disease. *Early Rose* (which is still a great favourite with cottagers) cropped heavily, and was free from disease. *Epicure* is largely grown by market men, and at Wisley the crop was heavy and free from disease. I have always considered *Harbinger* to be very hard to beat as an early round, and it has still further enhanced its fame in these trials, the crop being very heavy and free from disease, and it is worthily described as a "splendid first early."

On *May Queen* similarly high encomiums are bestowed, and

it seems that these two varieties, which were described in the *Journal of Horticulture* a few years ago as two of the best very early varieties, continue to maintain their reputations against all comers. Ninetyfold is recorded to have produced a very heavy crop, but unfortunately nothing is said as to its condition in regard to disease. Our own experience in regard to it is that although a heavy cropper, and the tubers of first-rate table quality, they are somewhat ill-shaped and much liable to disease. *Sharpe's Victor* was only slightly diseased, yielded a good crop, and is described as a fine early variety. The behaviour of *Sharpe's Express* was certainly disappointing, for although the crop is described as very good, it is recorded that the tubers were uneven and inclined to scab. It is perhaps not reasonable to expect any variety of Potato to always be good everywhere, but we certainly expected to find this splendid sort, which has won almost universal fame in a few years, to be as good as the best among the numerous varieties tested at Wisley; but then we all know the king of vegetables abounds in peculiarities, and sometimes is outrageously inconsistent. This year I hope *Express* will do itself justice in the R.H.S. Society's gardens. We have nothing but good to say of it, and have often been thanked for telling others of its good qualities.

Among midseason and late varieties *Factor* holds a good position, having produced a very heavy crop, slightly diseased. Ah! if the *Factor* would only resist the disease a little better one might term it perfect; but probably perfection will never be attained. At any rate, this variety should be grown by everyone. Satisfaction only gave a light crop, and was much diseased. This old variety has lasted well, and is still fine for exhibition purposes, but in regard to cropping qualities must, I think, generally take a back seat. *Royalty* proved to be the largest variety in the trial, crop heavy, free from disease. Neither *Eldorado*, *Northern Star*, nor *Pearl* (each in their time much boomed) proved a success. *Scottish Triumph* was considered identical with *Up-to-Date*, and *Early Regent* (Barr) synonymous with *Lady Truscott*.

Regarding the much-debated point as to whether *Factor* or *Up-to-Date* is the heavier cropper, it is interesting to note that the former produced a "very heavy crop," the latter a "good crop." Taking the records of the numerous trials conducted during the last few years, I think it must be clearly conceded that *Factor* holds the palm, both in regard to cropping and cooking qualities. Although in several important trials *Up-to-Date* did produce the heavier crop, variations in soils undoubtedly affect different varieties in different ways.

Neither *Highlander* or *Nobleman* seem to have been included in the trials, but both are grand varieties for their respective seasons. In our own trials the former has slightly beaten the *Factor* in regard to cropping powers during two successive seasons; and *Nobleman* has proved one of the best croppers among midseason varieties. We thought at one time we had in *Dalmeny Radium* a fitting successor to *British Queen*, as in 1906 it cropped grandly, and was quite free from disease. It is, however, certainly not a wet season Potato, for although it cropped heavily enough during 1907, the tubers were terribly diseased. This weakness in regard to disease is also borne out in the Wisley trials. *Schoolmaster*, which so far back as 1876 received a first class certificate, is still a favourite round with many exhibitors, but only gave a light crop, the tubers being diseased and very scabby. It has evidently seen its best days. *Ringleader*, a favourite early with many, cropped lightly, and was slightly diseased. Sir John Llewelyn, concerning which there have been so many diverse opinions, was certainly on its best behaviour at Wisley, where it produced a very heavy crop, free from disease. When seen at its best there are few second-early Potatoes to beat it, and to the exhibitor it is indispensable; but unfortunately it is too often seen making only miserable stunted growth on account of "leaf curl." If one could ensure getting clean, healthy stocks, and planting on land free from the spores of the fungus which causes leaf-curl, Sir John Llewelyn would undoubtedly be much more generally grown. Where growers have been unfortunate in this respect, it is certainly worth while starting afresh with Scotch or Irish seed, and planting on land which has not recently been devoted to Potato growing.—D. W.

Bibliography of the Chrysanthemum.

To those of our readers who are interested in the Chrysanthemum from a literary standpoint, we may draw their attention to the very comprehensive bibliography of the flower compiled by Mr. Harman Payne, which appears in the December number of the journal of the National Horticultural Society of France. The article, which, we understand, will be issued in separate form, was prepared by request of the Chrysanthemum Committee of that society, and includes all the known pamphlets and treatises on the flower that have been published in Germany, England, Australia, Austria, Belgium, France, the United States, Holland, Italy, New Zealand, and Portugal.

Greenhouse Structures.

New Fern-House at the Royal Botanic Gardens, Edinburgh.

As part of a scheme which has been in progress for several years, under the direction of the Regius Professor of Botany, Professor I. Bayley Balfour, for the modernising of the Royal Botanic Gardens, reports "The Scotsman," a new fern house has just been completed, and will be open in a few weeks to the public. It has been erected on ground to the east of the present range of greenhouses, with which it communicates, and to the main passage of which it forms a pleasant termination. Constructed of iron and glass, the main house has a length of 70ft, a width of 57ft at the widest part, and a height of 16ft. At the far end it opens up into a spacious domed chamber, 25ft in height, from which access can be had to the *Nepenthes* house. Ultimately it is hoped it will communicate directly with the large palm house. Set at right angles on the south side of the main building are two new glass houses about 60ft in length, one of which will be used for the display of Australian Heaths, and the other for ferns grown in a cool temperature. The main building is for tropical ferns. They are being planted in the earth in what practically will be a large rockery.

Massive blocks of red sandstone are being used for the rock work, and have a good effect as a background to the green foliage. The heat is admitted by narrow gratings at each side of the borders, and the visitor, instead of walking, as in some of the other hot houses, on iron perforated plates, has underfoot a solid gravel path. No pots are used for the ferns. Each plant is set out naturally in the soil. It has been found by experience in the other houses that by planting out in this way much better results can be obtained. The fern house, when completed, will be one of the best of the kind in connection with any public garden in the three kingdoms. Among some of the rarer ferns in it are examples of the *Staghorns*, *Davallia*, *Nephrolepis*, *Angiopteris*, *Polypodium vaccinifolium*, and other hanging ferns; of climbing *Lygodiums*; and of *Brainea insignis*.

The fern house, which has been constructed by Mackenzie and Moncur (Limited), has cost £2,400. A great improvement is in progress at the south-east corner of the Gardens, almost opposite the new entrance gate. This portion of the garden was formerly little better than a waste. Now it has been levelled up and turfed, and at the eastern boundary a herbaceous border has been laid out. The southern boundary of the Garden, overlooking Inverleith Terrace, has been transformed into what is practically an annexe to the adjoining rock garden. Right along the Inverleith Terrace front a rockery has been formed with huge blocks of a richly-tinted breccia or pudding stone from Callander, which will be partially covered with masses of hardy flowering plants of various kinds. A walk has been made inside the boundary wall from which this rockery can be surveyed, and rustic steps, as if cut in the rock, lead down from the plateau above. The same stone is being introduced with good effect into the old rock garden, as it has been found that it does not blacken in the same way as red sandstone slabs. Despite the bad weather which has been lately experienced, signs of spring are evident in the gardens in the formation of buds on the trees and in the blooming of some of the earlier rock and other flowers. The greenhouses are in very fine order, and the groves outside are vocal with the song of the birds.

Alpine Plants and Shrubs.

The grouping of alpine plants on the lines already shown (page 237) is admissible, the natural arrangement taking place instead of the mixed, as frequently seen in artificial rockwork. The grouping or massing of the several plants as distinguished from dotting them all over the place, not only secures special character and charm, but admits of providing for each the soil and substratum suited to its requirements. There is a difference between the alpine plants of the primitive and calcareous Alps. Many species prefer the one or the other soil for nutriment. Thus, as regards soil, alpine plants may be divided into three sections: 1, chalk-loving plants; 2, plants to which chalk is poison; 3, plants that will succeed in any ordinary soil.

The importance of soil, however, is a vexed question, and though there are reasons for a particular plant being found on a certain soil or substratum, it does not follow that the plant will not thrive on soil of a different nature, and to which it was supposed to be adverse. For instance, many plants described as disliking lime soil may be seen thriving on chalk or limestone formations; but the fact is seldom taken into account that the surfacing soil is so incrustated by vegetable and animal remains, and the soil and subsoil so denuded of its lime on which it is incumbent, as to bear little or no trace of that element, and therefore plants to which lime is regarded as

poison thrive with remarkable freedom. In our experience a vast majority of alpine plants thrive in ordinary soil, and adding further complications does nothing but hinder their culture.

A portion of the rockery or rock garden may be devoted to alpine shrubs, such as the *Andromedas*, frequently associated with rock plants, and particularly with hardy Heaths. *A. polifolia* is the easiest grown, thriving in ordinary soil. *A. fastigiata*, a beautiful Heath-like plant, bearing large, pure white, Lily of the Valley-like blossoms, requires rough peat and sand, well-drained, thriving best on northern slopes, as it loves moisture, and is impatient of drought; hailing from the Himalayas. *A. tetragona*, Heath-like, 6in to 12in high, with bright green quadrangular shoots, and numerous white bell-shaped flowers, is one of the prettiest of shrubs, and a native of Northern Europe and America, requiring a moist peat or very sandy soil, affording a good depth of this on rockwork. *A. hypnoides*, a minute moss-like shrub, 1in to 4in high, is perhaps, the most difficult to grow, hence very rarely seen in a thriving state. Drought is fatal to it, being a native of the coldest regions both of Europe and America. It should be planted on rockwork in deep, moist, but well drained soil, and carefully guarded against drought during the summer months, placing a few stones about the neck of the plant in order to prevent evaporation, and pegging down the slender main branches.

Arctostaphylos uva-ursi, a neat, dwarf, evergreen trailing shrub, growing about a foot high, has small rose flowers in early summer, and red berries in autumn. It grows in any soil, but prefers moist peat and grit, and is particularly useful for hanging over the brows of rocks.

Azalea amena, an elegant and neat, compact-growing shrub, with foliage about the size of that of the common Box, but hairy, and rich crimson flowers produced in great profusion. It succeeds in peat and sand, in sunny positions. It is a native of China, and proves quite hardy. *Azalea* (or properly *Loiseleuria*) procumbens, a wiry trailing shrub, forming dense carpets about 1in high, bears pink flowers in spring. It prefers deep sandy peat, and the openest of situations.

Cistus (Rock Rose) *Corborensis* forms a compact bush 1ft to 2ft in height, and gives a profusion of handsome white, circular flowers, 1½in across, more or less suffused with rose and with sulphur yellow centres. *C. Cupanianus* is a much branched shrub with roundish, heart-shaped leaves, and pure white flowers, 2in or more across. *C. laurifolius*, hardier than the common Gum *Cistus* (*C. cupreus*) forms an evergreen bush with dark green leaves and large white flowers. *C. lusitanicus* (dwarf Gum *Cistus*) is a charming species, the dense bush, 9in to 15in high, being dotted all over with pure white flowers, each petal having a yellow base and a dark crimson blotch immediately above it. *C. vaginatus*, a fine vigorous species, with large rosy-purple flowers; and *C. purpureus*, producing terminal clusters of deep red-purple flowers 3in across, with a very dark crimson blotch near the base of each petal above the yellow centre, and very handsome, but rather tender. This applies to most of the Rock Roses, therefore they should be given sheltered, sunny slopes, and a loamy soil.

Cornus canadensis (Dwarf Cornel) loves a moist peat soil, being a dwarf shrub about 6in high, and bearing large white flowers or bracts, pointed with a tint of rose. It succeeds on northern slopes, being a native of North America, in damp cold woods.

Cotoneaster rupestris, a very neat plant for rockwork and banks, thrives in loam.

Cytisus Ardoni forms dense procumbent masses of yellow flowers; while *C. decumbens* produces its yellow and brownish-purple Broom-like flowers from branched, woody, prostrate, weeping stems, both requiring a loamy soil and sunny exposures.

Daphne Cneorum (Garland Flower), a neat evergreen shrub, 6in to 12in high, bears a profusion of rosy-lilac flowers in terminal umbels, deliciously fragrant, thrives best in sandy peat soil kept rather moist in summer. *D. rupestris* (Rock Daphne) is more compact and dense than *D. Cneorum*, the shoots being erect, forming tufts about 2in high and a foot or more across, producing pale rose, waxy flowers, in clusters. It is of very slow growth, but if slowly, surely forms a moderate sized tuft, thriving in very stony and peaty earth in a well-drained, but not a dry position.

Epigaea repens (Ground Laurel), a small trailing evergreen shrublet, grows only a few inches high, and is found in North America in sandy soil in the shade of Pines, therefore should be given Heath (sandy peat) soil, in the shade of larger shrubs. It is remarkable for its delicate, rose-tinted flowers, exhaling a rich odour in early spring.

Empetrum nigrum (Crowberry), a small evergreen Heath-like bush, is a native and badge of the clan McLean, of the easiest culture in peaty soil, and may be planted with the lesser rock shrubs in places where least select.—G. ABBEY.

(To be continued.)

Societies.

Royal Horticultural, March 17th.

The exhibition on Tuesday last was not quite so full as the one a fortnight ago, and there was seemingly less general high quality. There is a tendency to have large exhibits of only medium stuff, instead of smaller displays of the choicer subjects. The best features were Major Holford's, Messrs. Charlesworth's, and Messrs. A. and J. McBean's orchids; Messrs. Wm. Paul's forced ornamental Peaches and Almonds; Messrs. Veitch's *Azaleas indica*; and Mr. George Mount's Roses, which are never so charming as in February and March. Messrs. Ware staged a selection of 300 kinds of hardy plants; and Messrs. Low had a large number of species of *Acacia*. No certificates were awarded by the Floral, Fruit, or Narcissus Committees, but the Orchid Committee gave eight, and two cultural commendations. A lecture was delivered at 3 o'clock by Mr. George Gordon, V.M.H. There was again a large attendance of visitors. The weather was fairly bright.

Fruit and Vegetable Committee.

Present: Mr. Owen Thomas (in the chair); with Messrs. W. Bates, George Woodward, H. Markham, Chas. D. Walter, Alex. Dean, H. Parr, Edwin Beckett, Geo. Kelf, J. Davies, J. Vert, W. H. Davies, J. McIndoe, Chas. Foster, C. G. A. Nix, Geo. Wythes, H. Somers Rivers, and W. Poupart.

A collection of Orange fruits—very large and handsome—from Mr. Ansell, of Cyprus, were awarded a silver-gilt Knightian medal. Mr. Alex. Dean sent four dishes of Apples; and Messrs. George Bunyard, Ltd., staged thirteen dishes of Apples, among them being Smart's Prince Arthur, Newton Wonder, Striped Beaufin, and others, all in first-rate condition.

Narcissus Committee.

This committee sat for the first time this year.

The only exhibit under this committee was one of *Daffodils* from Messrs. Barr and Sons, King Street, Covent Garden, W.C. They had *Elvira*, one of the triandrus hybrids, which was much admired. Others were *Mme. de Graaff*, *Monarch*, *Excelsior*, and *Glory of Leiden*, among trumpets; *Juliet*, *Ellen Barr*, and *Almira*, as poeticus varieties; *Constellation*, *Princess Mary*, *White Lady*, *Almira*, *Katherine Spurrell*, and *Frank Miles*, among the incomparabilis. (Silver Banksian medal.)

Orchid Committee.

Present: Mr. J. Gurney Fowler (in the chair); with Messrs. James O'Brien, Harry J. Veitch, W. Boxall, Richard Thwaites, F. Sander, H. G. Alexander, John Cypher, F. Monteith Ogilvie, J. F. Alcock, Walter Cobb, J. Charlesworth, W. P. Bound, Arthur Dye, W. H. White, H. A. Tracy, H. Ballantine, Gurney Wilson, F. J. Hanbury, W. Bolton, R. Brooman White, C. J. Lucas, de B. Crawshaw, A. A. McBean, A. J. Foster, and Stuart H. Low.

Messrs. Hugh Low and Co., Bush Hill Park, Enfield, among other things had *Cymbidium Wiganianum*, pale creamy, with crimson veins; also *Cattleya Trianae plumosa*, a very handsome variety. (Silver Flora medal.)

H. S. Goodson, Esq. (gardener, Mr. Geo. E. Day), 85, West Hill, Putney, brought a bank of *Odontoglossums* with some fine varieties. (Silver Flora medal.)

Messrs. Moore, Ltd., Rawdon, Leeds, had a small miscellaneous exhibit which comprised *Epiphronitis Veitchi*, *Dendrobium nobile album*, *Lycaste Skinneri delicata*, *Cypripedium aureum Edippe*. (Silver Banksian medal.)

Messrs. McBean, of Cooksbridge, contributed *Odontoglossums crispum* mainly. The plants were in grand health, and splendidly flowered. There were several fine varieties (unnamed). (Silver Flora medal.)

Messrs. Cypher and Son, Cheltenham, brought *Cypripedium Venus*, *Cyp. Beckmanni*, large and handsome; *Odontoglossum ardentissimum*, *Odonto. Lawrenceana*, *L.-c. Thorntonii* (very effective). With these there were *Sophranitis grandiflora*, *Epidendrum xanthinum*, and numerous *Dendrobies*. (Silver Flora medal.)

Messrs. Heath and Son, Cheltenham, had a general collection of seasonable kinds of orchids, but nothing especially noteworthy.

F. Monteith Ogilvie, Esq. (gardener, Mr. W. Balmforth), The Shrubberies, Oxford, sent a well-flowered assortment of *Odontoglossums*. (Silver Banksian medal.)

Sir Jeremiah Colman, Bart. (gardener, Mr. W. P. Bound), Gatton Park, Reigate, brought just a few *Dendrobiums* of first-rate quality. These included *D. Thwaitesii* in several forms, *D. Mrs. Alfred Rogers* (*Findleyanum* x *Hildebrandtii*), and *D. Rolfe roseum*. There were five different varieties of *D. Thwaitesii* from one pod of seed.

Messrs. Charlesworth and Co., Bradford, had *Odontioda Heatonense*, *Lælio-cattleya Elinor*, and *Miltonia Warscewiczii*, lately named *Odontoglossum fuscum*.

A cultural commendation for a splendid plant of *Brasso-*

cattleya Lindleyana (*Brassavola tuberculata* x *Cattleya intermedia*) was accorded Sir Trevor Lawrence, Bart. The flowers are borne in pairs, and there were about thirty pairs.

J. Bradshaw, Esq. (gardener, Mr. G. G. Whitelegg), The Grange, Southgate, had a remarkably fine display of white *Cattleyas*, including *C. Trianae alba*, *Prima Donna*, *Oberon*, and *Esmeralda*. He had also several pretty *Lycastes*, including *Armeniacæ*, salmon-rose; *Princess Ida*, and *Lady Gladys* (white). The plants were clean and well grown. (Silver-gilt Flora medal.)

Major Holford, C.I.E., C.V.O. (grower, Mr. H. G. Alexander), Westonbirt, had a small collection of gems—gems of the first water. *Dendrobium Perseus*, *D. P. aureus*, and *D. Melpomene* were included; also *Brasso-cattleya Digbyano-Mendeli*, *L.-c. Earl Grey*, and *L.-c. luminosa*, Westonbirt variety. There were besides several *Odontoglossums*, any one of which might have been creditably awarded a cultural commendation. A C.C. was accorded to *Odonto. Adrianae* var. *Lady Wantage*. (Silver-gilt Flora medal.)

Floral Committee.

Present: Mr. W. Marshall (in the chair); with Messrs. Chas. T. Drury, T. W. Turner, G. Reuthe, C. R. Fielder, Jas. Hudson, J. W. Barr, Wm. Howe, E. A. Bowles, J. Jennings, F. Page Roberts, Jas. Douglas, Chas. Dixon, Chas. E. Pearson, R. C. Notcutt, Herbert J. Cutbush, Wm. Cuthbertson, W. P. Thomson, Arthur Turner, E. H. Jenkins, Wm. J. James, George Paul, Chas. E. Shea, J. F. McLeod, C. Blick, and R. Hooper Pearson.

Mr. W. H. Page, Tangley Nurseries, Hampton, was again represented by perpetual flowering *Carnations*. The flowers were stronger and firmer than ever, of good size and richness, on long wiry stems. The best were *Winsor*, *Britannia*, *Jessica*, *Mrs. Lawson*, *White Lawson*, *Harlowarden*, and *Aristocrat*. (Silver Banksian medal.)

Carnations also came from Mr. H. Burnett, Guernsey, who had *Mrs. H. Burnett* (salmon pink) in especially fine condition. *Marmion* was still forward in good style, and there were also *White Perfection*, *Mrs. Lawson*, and *Robert Craig*. (Silver Flora medal.)

Cinerarias of the florists' type, and of enormous size so far as the plants were concerned, came from Mrs. H. S. Barton (gardener, Mr. F. Streeter), Birtley Gardens, Bramley, Guildford. The chief variety was *Veitch's Antique Rose*. Such big specimens (though only in 6in pots) lose something of their refinement. (Bronze Flora medal.)

Forced shrubs, including *Azaleas*, standard and bush *Prunus*, *Wistarias*, &c., came from Mr. L. R. Russell, of Richmond. *Lilacs* and *Clematises* were also included. (Silver Flora medal.)

Mr. G. Reuthe, Keston, Kent, brought a pretty bank of hardy plants, among which were double *Primroses*, *Hepaticas*, encrusted *Saxifraga Kestoniensis*, large white flowers; *Sax. Albert*, pale yellow; *Colchicum libanoticum*, &c. A selection of hardy hybrid *Rhododendrons* was also here. *R. barbatum* is a very rich crimson. Lastly, the species of *Crocus*, in pots, formed an interesting group by themselves. (Bronze Flora medal.)

Messrs. James Veitch and Sons, Ltd., Chelsea, again staged a large display of forced shrubs in great variety. Tall standards of *Pyrus Maulei*, with brick-red or orange-red flowers, at the back, was very pleasing. There were also *Loropetalum chinense*, *Lilacs* in a number of varieties, *Deutzias*, *Rhododendrons*, *Pyrus floribunda atrosanguinea*, *Cerasus pseudo-Cerasus James H. Veitch*, *Cerasus serrulata* (double white), *Wistarias*, *Choisya ternata*. Other interesting things were *Rubus roseiflorus*, with double white flowers; and among the *Rhododendrons* were *Christmas Cheer*, *rose-white*; *Handsworth Early Red*; *Early Gem*, and *ciliatum* (shown as small plants in a basket). The comparatively new and rare *Libocedrus macrolepis* was also included. Unfortunately this is not quite hardy. In addition to their forced shrubs, Messrs. Veitch had pyramidally-trained *Azalea indica* varieties. These were dense masses of the richest flowers, including *Mme. J. Vervaene*, *Dr. Moore*, *Empress of India*, *President Oswald de Kerchore*, *alba odorata*, *Herman Seidel*, and *Mme. Morreux*. These may be regarded as among the finest of the present time. The same firm showed a table length of a very fine strain of *Cyclamens*. (Gold medal.)

Messrs. R. and G. Cuthbert, Southgate, N., brought beautiful *Azaleas*, with large, expansive heads of handsome flowers; also *Wistarias*, *Guelder Roses*, double crimson *Thorn*, *Cytisus alba* (as standard), *Ledum ledifolium*, *Prunus triloba*, and *Lilacs*. The best of the *Azaleas* were *Elizabeth* (rich salmon-scarlet), *Florodora* (orange-red), and *Anthony Koster* (yellow). (Silver-gilt Banksian medal.)

A very pretty and effective piece of rockwork in Mr. H. C. Pulham's well-known style was erected by his firm. His address is *Elsenham, Essex*. The "rocks" were, of course, of tufa, in boulder masses with bays, crowned with dwarf *Pernettyas*, *Gorse*, and *Retinosporas*, and having the crevices filled with suitable alpine plants. *Primula marginata* was noteworthy, and also *Androsace carnea*.

A small display of hardy plants came from Messrs. Cheal and Sons, of Lowfield, Crawley. We observed *Primula rosea*, *Galax aphylla*, *Saxifraga altissima*, *Morisia hypogaea*, *Primula viscosa nivalis*, *Saxifraga Griesbachii*, and other seasonable subjects. The exhibit was backed by neat evergreen shrubs, as *Thuyas*, *Pinus*, *Box*, and *Cryptomerias*.

Messrs. Cannell and Sons, Swanley, brought individual flowers of their *Primulas*, and again showed zonal *Pelargoniums* arranged in bunches. Of the decorative section, *alba fimbriata* was especially fine. The following are first-class varieties: *Sir T. Hanbury*, dark crimson; *King Victor*, scarlet; *Lady Folkestone*, pink; *Lucania*, rose-scarlet; *Saxonia*, deep scarlet; *Caledonia*, mauve; and *Mauretania*, pale pink and white. (Silver Banksian medal.)

The St. George's Nursery Co., Harlington, Middlesex, once more proved that they are the champion growers of *Cyclamens*. Their long table display represented plants in the highest state of cultivation. They were in 5in and 6in pots, and bore crowds of the finest flowers. *Giant Salmon King*, described as "Our own," was included. (Bronze Flora medal.)

Primroses and other hardy flowers came from the Misses Kipping, Hutton, Essex; and a similar display was brought by the Misses Hopkins, Mere Gardens, Shepperton-on-Thames.

Messrs. Geo. Jackman and Son, Woking, staged *Primula denticulata alba*, hardy *Cyclamens*, and other things.

Messrs. Sutton and Sons, Reading, staged hybrid *Freeseias* in some new attractive colours, as clear yellow, mauve, reddish-cinnamon, and yellow and russet. They displayed great possibilities.

A highly creditable exhibit came from E. A. Hambro, Esq. (gardener, Mr. J. Grandfield), Hayes Place, Hayes, Kent. The subjects were hardy plants in pots and pans, also shrubs. All of them were notably clean and fine, and indeed it is questionable if a finer hardy display from a private garden has ever been seen. There were several very excellent things included, as *Saxifraga Boydi alba*—a fine pan of this, said to be worth at least ten guineas. Also *S. Boydi* (yellow), very fine, and all the best *Primulas*, like *nivalis alba*, *denticulata alba*, and others. Forced *Daffodils*, and smaller bulbs, with *Azaleas* and shrubby *Spiraeas* completed a very handsome exhibit. (Silver-gilt Banksian medal.)

Carnations were abundantly shown by Messrs. Hugh Low and Co., Bush Hill Park, Enfield, their flowers being particularly fine. Of *Acacias* (twenty-five varieties) and *Azalea indica* they had a nice representation. *Acacia Drummondii*, *A. spiralis*, *A. cordata*, and *A. magnifica* were here. *Gerbera Jamesoni* in pots, and flowering, was attractive; while *Daphne odorata* and *Francisca calycina* rendered fragrance as well as colour. (Silver Flora medal.)

Messrs. Barr and Sons, King Street, Covent Garden, were strong in *Crocuses*, which they showed in long boxes, like window boxes. The effect was bright and good, particularly *Crocus aureus*, *purpureus grandiflorus*, and *Blue Celeste*. Their *Rose de Nice* double *Anemone* contrasted well with *Anemone blanda Taurica*. *Narcissus minimus* and *N. minor* were included, as well as *Helleborus purpureus superbus*, and the new *H. Peter Barr*. (Silver Banksian medal.)

Messrs. H. B. May and Sons, The Nurseries, Upper Edmonton, had *Cyclamens*, *Azalea indica* Mme. Morrent, and young *Clematises*, nicely flowered in 5in pots. These were shown in grouplets of one variety, the plants being about 4ft high. The kinds were *Lady Londesborough*, *Fair Rosamond*, *Lady Wolseley*, *Miss Bateman*, and *Nellie Moser*. (Silver-gilt Banksian medal.)

Messrs. Sutton and Sons, Reading, displayed a most excellent complement of *Cinerarias* in a range of colours. These comprise pale silvery mauve, old rose, deep rose, and numerous shades of pink. They had also light blue shades, the colour intense and radiant, and altogether beautiful. The plants were fine models, averaging 1ft in height, bushy, stout, with good leathery foliage, and admired on all hands.

Messrs. W. Paul and Son, Waltham Cross, staged a collection of flowering *Peaches* and *Almonds*—a class of ornamental shrubs which they are highly successful with. These were sturdy, nicely shaped young plants in 10in and 12in pots. *Prunus triloba* was conspicuous; also *Prunus persica fl.-pl.*, *P. camelliaeflora*, *P. Amygdalus fl.-pl.*, *Pyrus floribunda*, *Cerasus pseudo-Cerasus*, *Pyrus Scheideckeri*, *P. Niedzwedzkyana*, with dark purplish flowers. They also had the yellow Banksian *Rose* and the new Chinese species *Hugonis*, with neat, *Acacia*-like foliage and soft yellow single flowers that last a long time. This is quite hardy, and there is a large bush of it at Kew. (Silver Banksian medal.)

A table-length was again filled by Messrs. Cutbush, Highgate, with forced *Azaleas* and other shrubs; together with hardy and greenhouse plants. (Silver-gilt Banksian medal.)

The Guildford Hardy Plant Co. had *Pulmonaria saccharata*, *Heaths*, and dwarf *Saxifragas*. Miss Alice M. Smith, Barnham, Bognor, Sussex, brought *Primroses*.

From their Feltham nurseries Messrs. T. S. Ware, Ltd., sent one of the best collections of hardy plants in this show. The

plants were shown in cork-bark boxes, these being arranged on a sloping bank. The plants were mostly seasonable, with others, like *Conandron ramondoides* and *Ramondia pyrenaica*; also various *Helianthemums*. Altogether there were some three hundred different species, shrubby, herbaceous, alpine, and also ferns. With these there was a group of *Primula obconica gigantea*. (Bronze Flora medal.)

Roses were again staged by Mr. Geo. Mount, of Canterbury, the new h.t. *Joseph Lowe* being very fine. (Silver Flora medal.)

Hardy plants and *Primulas obconica* came from Messrs. Peed and Son, West Norwood. *Primula rosea* and hardy *Cyclamens* were here very fine; also *Lachenalias*. (Silver Flora medal.)

Certificates and Awards of Merit.

Cattleya Enid, *Westonbirt* var. (Major Holford).—Parentage: *C. Mossae* × *C. gigas*. Flowers very large and fine, with prettily frilled lip which is bright purple. The broad petals and sepals are rose-mauve. A.M.

Cattleya Susanne de Crom (Mons. Jules Hye de Crom, Ghent).—A grouplet of this handsome white flowered *Cattleya* appeared at the previous exhibition. The flowers are very elegant, large, heavy, broad petalled. F.C.C.

Dendrobium fuciforme (Moore, Ltd.).—This received a botanical certificate. The flowers are small, with narrow segments half an inch long and tea coloured.

Leilio-cattleya Elinor (Charlesworth and Co.).—Parentage: *L. Coronet* × *C. Schrödera*. Flowers of good size and intense orange colour. *C. Schrödera* does not appear to have much influence. A.M.

Leilio-cattleya luminosa, *Westonbirt* var. (Major Holford).—Parentage: *L. tenebrosa* × *C. aurea*. A noble flower, of huge size and great substance. The lip is magenta purple and the petals and sepals are golden russet. A.M.

Odontoglossum Gladys (Charlesworth and Co.).—Parentage: *O. cirrhosum* × *O. Harryanum*. Quite intermediate, with the *cirrhosum* form and *Harryanum* colour. A.M.

Pleione pogonioides (Jas. Veitch and Sons, Ltd.).—A new species from China, with pale purple flowers. Bot. Certificate.

Vanda suavis pallida (Panwells, Meirelbeke, Belgium).—The flowers are of average size and form, coloured white and spotted greenish yellow. F.C.C.

The Horticultural Club.

BIRDS.

The usual monthly dinner of this club took place on Tuesday, the 3rd inst., Mr. Harry J. Veitch presiding, when Mr. Chas. Pearson, who had promised to give a lecture on birds' eggs, was unavoidably absent owing to an attack of the prevailing epidemic of influenza. Mr. R. H. Read, an authority on the same subject, very kindly filled the gap at short notice with a description of an ornithological excursion in Southern Spain, illustrated by numerous lantern slides. The lecturer prefaced his exhibition of views and nests *in situ* by a graphic account of his trip in the spring of 1906, the object of which was the study of the birds of that country. On the way thither he passed through Bordeaux, where he saw immense forests of Pines largely devoted to the production of turpentine, every tree being scored longitudinally and provided with little collecting cups, the raw product being worked up by terebene factories on the spot. Passing onwards, the various phases of spring vegetation were touched upon, and also, of course, the numerous species of birds, many of which were obviously migrating in enormous numbers on their way hither and elsewhere. Willow warblers, blackcaps, nightingales were seen.

Arrived in the Jerez or sherry-producing district of Spain (the word sherry being really an approximation to the Spanish name, while the old word, *Sack*, was a corruption of *Seco*, or dry "sherry sack," meaning dry sherry), the lecturer made his way to the curiously constituted bird paradise, known as the Marismas, a vast area of flat land covered during the winter and spring by about 2ft of water, which dries up in the summer, leaving large expanses of sun-dried mud, varied by stretches of sand and shingle. Birds of innumerable kinds abounded here—herons, stilts, terns, and other waterfowl; with egrets, kites, and other birds of prey. A curious arboreal feature in this district was that owing to the scarcity of fuel, the Pine trees were all denuded of their lower branches, and were consequently reduced to somewhat mop-like forms. In some cases drifting sand invaded both trees and smaller vegetation, and some of the slides showed curious effects in this direction.

Among the most interesting slides were those showing various nests. Herons and eagles, &c., were high up in lofty trees, while another series depicted ground nests, in many cases hardly worthy of the name, the eggs being laid in all but invisible groups among rough stones and shingle, and by their mottled colouration almost defying the eye to detect them. The nests and eggs of many aquatic birds were also shown cosily planted amid the Reeds and Rushes, which, in many cases, necessitated standing knee deep in water in order to obtain the

photograph. A discussion followed, in which Mr. W. Pycroft, Percy F. Bunyard, W. Marshall, H. J. Veitch, and C. T. Druery took part, and a hearty vote of thanks concluded the entertainment.—C. T.

Guildford (Surrey) Gardeners'.

At a meeting of this association, held on Tuesday, March 10, A. R. Upton, Esq., president, in the chair, a goodly number of members assembled to hear a lecture given by Dr. Goodwin, of Wye College, on "Phosphatic and Potash Manures." Dr. Goodwin dealt with the various forms of these manures in a most instructive and interesting manner. The lecturer received a very hearty vote of thanks at the close of his lecture. Votes of thanks were also given to Mr. Walking for a small group of *Lachenalias*, and to Mr. W. Foreman, Stoke Park Gardens, for an excellent group of mixed plants, prominent among which were first-rate specimen plants of *Cyclamens*.

Scottish Horticultural.

There was a crowded attendance in the Goold Hall, Edinburgh, on March 4, of members of the Scottish Horticultural Association, when Mr. Whytock, Dalkeith Gardens, the president of the association, delivered his inaugural address. His subject was "The Horticultural Outlook." Horticulture, he said, as they had to deal practically with it at the present time, might be divided into four large important and distinct sections, namely, nurserymen and seedsmen, market gardeners, city and town gardeners, and the private gentleman's gardener. Scottish gardeners were found the world over, and from that chief centre in Scotland they might safely assert a large proportion of these men had gone forth. The highest excellence in the large private gardens in Britain was undoubtedly attained between 1850 and 1870, during which time it was said that at Drumlanrig was the finest in Europe. *Nemophila*, *Cuphea*, *Verbenas* of various colours, *Stocks*, *Tom Thumb "Geraniums,"* and *Calceolarias* which were used in Drummond Castle, Bothwell Castle, and Tulliallan Castle gardens about 1860 would be despised now. He compared the improved lot of the young gardener at this time with his lot in those past years, when the journeyman's wage was 11s. weekly. By 1870, it was pointed out, the period of depression in trade had passed away. Horticulture began to be thoroughly democratised, and the market gardener and public gardens and pleasure grounds came into prominence. There was probably no city in the kingdom that had been more favoured with winter gardens in their parks and gardens than Glasgow. As almost none of these glass houses were in existence when the present superintendent, Mr. Whitton, was appointed, it would seem that that very able gardener by his initiative induced liberal-minded merchant princes in Glasgow to give large sums for their construction, and also to make gifts of beautiful pleasure grounds. In spite of the agitation which had been carried on since about 1870, Edinburgh had not yet got anything of the kind.

After a reference to the excellent entertainment which the society's shows provided, the President said that during the past thirty years in the enormous increase in industrial and mercantile energy, and the corresponding increase in wealth, horticulture had been equally energetic. The people had now splendid pleasure grounds and beautiful gardens of their own to walk in and enjoy, and they had brought to their own doors incomparably better fruit, flowers, and vegetables than could be got thirty years ago, at such low prices that it was a marvel they could be produced for them. There was admittedly depression at present, but there was no indication that the progressiveness of the nation had been arrested, and they were justified in thinking the depression would soon pass. Commercial horticulture had a great future, and probably in the future they would have more specialists in their ranks. The art of gardening would flourish more than it had yet done, and there would be plenty of room and good wages for competent men. [We hope to publish the full address.—Ed.]

An exhibit of Lilacs and Indian Azaleas, grown by Mr. Reid, was shown during the evening, which bore testimony to the efficacy of electric light in bringing the bloom rapidly to perfection. All the plants had been grown side by side, but two of the Lilacs and two of the Azaleas had been continuously exposed to electric light for from ten to fourteen nights, and were in beautiful flower, while in the plants shaded from the light the flowers were mostly in bud.

There was a very full attendance. After the election of a large number of new members, the chairman very feelingly referred to the lamented death of the Marquis of Linlithgow, who for two years had been honorary president of the association, and it was unanimously agreed to record in the minutes the sense of great loss sustained by the untimely death of the Marquis, and their grateful appreciation of the valuable services he had rendered. Mr. Whytock then delivered his inaugural address as president, which might be entitled, *A Horticultural Retrospect and Outlook*. The address was listened to with rapt attention, and was frequently applauded.

At its close, Mr. D. W. Thomson, the retired president, moved a vote of thanks to Mr. Whytock, touching with characteristic humour on some of the points prominent in Mr. Whytock's paper, and defended himself from some of the criticisms Mr. W. had made on his own address of two years ago. Mr. McHattie seconded, in a few appreciative remarks, expressing the great pleasure the meeting had had from Mr. Whytock's informative and suggestive paper. Mr. Comfort also spoke similarly, and the meeting expressed its thanks with enthusiasm.

Bristol Gardeners'.

A well attended meeting was held on Thursday, March 12, at St. John's Parish Rooms, presided over by Dr. Shaw. Mr. Folwell, representing the Bath Gardeners' Debating Society, gave a practical discourse upon *Cyclamens*. The use of rain water alone, he said, was advisable, and the larger proportion of the potting compost should consist of leaf mould, as in their natural habitat these plants are invariably found growing under trees; potting the plants not too firmly. Judging by the vase of lovely large flowers and foliage he had on view, Mr. Folwell is a successful cultivator. Dr. Shaw opened the discussion, followed by Messrs. Curtis, Scott, Binfield, Holt, Thoday, House, Garnish, J. Clark, Shelton, and Woodward. Hearty votes of thanks were given to the lecturer and the chairman at the close. Certificates were awarded to Mr. Folwell for a vase of *Cyclamens*; to Mr. Woodward for two pots of *Cyclamens*, and to Mr. Jennings for *Coelogyne cristata alba*. A special certificate went to Mr. Hunking for *Dendrobium Lang Fang* Mountain variety, and *Laelio-cattleya Blechleyensis*. For three pots of *Hyacinths*, Mr. Shelton was first; Mr. Thoday second.—H. W.

Birmingham Gardeners'.

FLORISTS' FLOWERS.

At the fortnightly meeting held on the 9th inst., Mr. Walter Jones in the chair, Mr. A. R. Brown, of King's Norton, the noted *Auricula* and *Carnation* expert, gave a verbal dissertation on florist flowers. In his prefatory remarks Mr. Brown remarked upon the wonderful strides that had taken place during the last twenty years in the raising and cultivating of florist flowers, notably alpine *Auriculas*, *Carnations* and *Piotees*, *Begonias*, *Narcissi*, *Sweet Peas*, and *Chrysanthemums*. Notwithstanding the advance, a few species are still represented by varieties raised upwards of a quarter of a century ago, that are not excelled at the present time. Particularly does this apply to the *Auricula*. The tuberous *Begonia*, however, may claim an advance surpassed by no other florists' flower, not even the *Sweet Pea*. The *Rose* also had made a distinct advance, which is emphasised by the popular hybrid tea section. Several other varieties of flowers were mentioned, and pertinent references were more or less made to the attributes of the principle varieties in each class of flower. Mr. Brown's interesting lecture was much appreciated, and led to an animated discussion, participated in by Messrs. W. Jones, T. Humphreys, Spinks, Herbert, Gardiner, and Giles. It may be interesting to remark that Mr. Brown's deceased father was a well known and enthusiastic Birmingham florist.—W. G.

Liverpool Horticultural.

On Saturday, the 7th inst., in the Common Hall, Mr. B. Ashton, of Lathom, read a paper on "Tree and Malmaison Carnations." The essayist is a very successful cultivator of these subjects. A number of growths were on view, and caused much comment owing to their remarkable vigour and solidity. Cuttings of the tree section are inserted in December and onwards. The receptacles are placed in propagating frames having a bottom heat of 75deg. and 60deg. top. The medium for cuttings is of a sandy nature. For the subsequent pottings the compost is, to every barrow load of fibrous loam an 8in pot of red sand is added, a 6in pot of bonemeal, and a little soot, also a fair amount of leaf soil. No manure is used whatever, the lecturer relying on the manual properties of bonemeal. Patent compounds are eschewed. The young plants are pinched in February for the first time, and finally in June or early July. Mr. Ashton urged the necessity of careful watering. Weak dilutions of guano water is the only stimulant advised. Rust is kept at bay with applications of "Carmen." A temperature of 55deg suits the plants during the winter months.

The culture of Malmaisons was thoroughly dealt with. Propagated by layers in August, the young plants are placed in 3in pots, and finally into 6in. Large specimens are not in favour with the lecturer. Strict attention to the ventilation of the structures is absolutely essential if success is to be acquired. Plenty of air is given at all times. No harm results if the temperature reaches the freezing point, or even lower. A splendid list of varieties was given for each section. The attendance was wretched, which is regrettable when one thinks of the excellence of the paper. Mr. Ashton received the most sincere thanks for his discourse. This meeting terminated the winter session.—R. G. J.

Young Gardeners' Domain.

* The prize is awarded to "Rubrum" for his letter hereunder:—

Retarded Lilliums for Winter Decoration.

Retarded Lilliums are now recognised as most useful and effective subjects for winter decoration. In order to have the plants in bloom by the end of October and early November the first batch should be potted about the middle of June, with intervals of three weeks between the pottings, until the end of July or early August for the later supplies. A good method, and perhaps the best, is to pot singly according to size—5in for the smaller, to 6in or 6½in for the larger bulbs. The compost used should consist of three parts fresh loam, with the addition of a little silver sand, charcoal, and a small part flakey leaf soil, or spent Mushroom dung. The bulbs should be potted as low as possible in the pots to allow for a liberal top-dressing later. When potted they should be placed in a shady position, with a covering of short litter shaken over them until growth commences. When the growths are two or three inches long they should be moved into an open position where they can receive full amount of light and air in order to build up sturdy growth. The plants should not be coddled at any stage. In the event of heavy rains a light should be placed over to prevent them from becoming too sodden.

When the plants are about eight or nine inches high they should be top-dressed. The soil used may be mixed rather richer than the mixture for first potting; sheep droppings passed through an half inch sieve or a little of some reliable fertiliser added, as first advised, will answer very well. The plants will require very little feeding, apart from this top-dressing, until they are well established and the pots full of roots. Weak liquid manure from sheep droppings should then be given, used alternately with soot water, or a little of some reliable fertiliser. Small doses and often should be the rule. Stimulants applied to excess, either in the compost or later, is the frequent cause of failure. Strict care should be taken to keep plants free from the attacks of green fly or other aphides. Success is impossible if these pests are not quickly checked. The most efficient method is fumigation, or dipping the plants in one of the many nicotine preparations will keep them in a clean and healthy condition. The plants should be housed about the middle or end of September, giving them a position where they can receive all the light possible, and a free circulation of air. A temperature of 50deg to 55deg is most suitable. Batches can be introduced into heat as required.—RUBRUM.

Early-flowering Chrysanthemums.

Early-flowering Chrysanthemums form one of the most striking features of the garden from the end of August to the end of October, the flowers being valuable for the ornamentation of borders and also for cutting. The cuttings should be taken about the second week in February, and be placed in a cold frame. They will require spraying over in the morning, always letting them get moderately dry by the evening. There are two ways in which to strike them, one is to box them out in 3in or 4in of soil about 3in or 4in apart, leaving them there until they are planted out; but the best way is to put three or four round a sixty-sized pot, in a compost of equal parts loam and leaf soil, and a liberal quantity of sand or mortar rubbish sifted. The frame should be kept closed until they are rooted, then gradually admit air until the lights may be left off altogether. About the second week in April they will require potting, this time into fifty-four's, adding a little more loam. After potting place them back again into the frame for a few days, and then stand them out altogether. Although fairly hardy, if there are any signs of frost it is advisable to throw a light covering over them. They should be planted out from 2ft to 3ft apart, about the middle of May.

In preparing the ground for them it is essential to dig it as deeply as possible. After they have started to grow nicely they should have their points taken out so as to make them bushy, and again when they have made about 6in of growth, if it should be the object of the gardener to have them very bushy, and as soon as large enough should be staked and tied. The Masse family requires very little stopping, as they generally throw up a lot of suckers. They may be planted in the kitchen garden to make their growth in summer, and afterwards dug up and potted or planted in the bed or border just before they flower, or they may be lifted when in full flower. If they are given a good soaking the day before they are lifted, and another after they are planted, one would hardly know they had been shifted. After the plants have finished flowering it is best to take them up and place them in a box in a cold frame. If the old plants are to be grown for another year they should be planted out about the first week in May, first thinning out some of the weakest shoots. Some of the best varieties which

have come to my notice are Carrie, Horace Martin, Market White, Queen of the Earlies, White Quintus, Cactus, Bouquet Feu, Crimson Masse, Ryecroft Crimson, Miss A. Willis, Ralph Curtis, Kitty, Blush Beauty, Chateau St. Victor, and Rubis.—J. M. STEVENS, The Gardens, Cross Lanes, Guildford.

Violets.

Enormous quantities of these flowers are imported into this country during the winter months, but they can in no way compare with those grown in our English gardens for freshness and fragrance. Being a lover of this small though delightful flower, I have, as far as I am able, taken special interest in regard to the treatment they should be given, whereby a good return may confidently be looked forward to for the time and care expended upon them. To obtain success it is essential to pay the greatest attention to the plants during the stay in their summer quarters, a fact often overlooked in some gardens. As soon as they have finished flowering they should be taken up, the young growth taken from them, and planted upon a cool shady border, the soil being of a good open character, and given a thorough watering. As they commence to grow the syringe should be applied several times daily, and as the hot weather makes its presence felt great care must be taken to get the syringe under the leaves, also see that the plants in no way want for water, or the much-to-be-dreaded pest, red spider, will soon make its appearance and work havoc with a promising batch of plants.

With the beginning of September preparations must be made for their flowering quarters. Where plenty of brick frames are at disposal, and a gentle circulation of heat can be obtained, fresh soil should be placed into them to bring the plants as close to the glass as the pipes will allow, and the work of planting proceeded with, giving a fair amount of room between the plants. Others not so fortunate should make up a hotbed with leaves and stable litter a little in advance, placing boarded frames in position to catch as much sun as possible, and a matter of fifteen to eighteen inches of soil placed therein. The soil turned out from pots mixed with a little lime rubble and burnt earth is quite suitable.

The plants should be well watered in, and if they feel the effects of the sun a light shading should be given during the day, the lights to be removed during the night, air being the most essential factor, and the dew will help considerably to establish them in their new quarters. With the November fogs settling down upon us, the greatest care must be exercised in giving air. The fortunate one should gently circulate the heat in his pipes, being careful not to over-heat them, or again he will encourage red spider, causing considerable annoyance to get under. All suitable weather the lights should be removed, and all decayed matter taken from the plants, and the surface soil should be gently pricked over with a hand fork. I feel sure if Violets were given a little care and attention, similar to the above, they would often be a success where they are now only moderate, and a few happy moments would be given to the harassed gardener by the thanks he would surely receive from his mistress for the beautiful and fragrant Violets.—F. G., Lydhurst Gardens, Haywards Heath, Sussex.

Begonias for Bedding.

I think the tuberous Begonia is one of the best plants we have for summer bedding, as it seems to have a way of its own in blooming as well in a wet season as a dry one. It is far the best plant to grow a good batch from seed each year, and at the end of the season the best plants can be picked out and stored away for pot work the following year. Seed should be sown from the middle to the end of January in a compost of leaf mould and cocoanut fibre in equal proportions, with a good sprinkling of coarse sand mixed with it. The pots or pans should be well drained, and, of course, made very fine on the top. The seed must not be covered with soil. Place a pane of glass over the pans, and set them in a warm house or pit, where a temperature of 60deg can be maintained. Prick out the young plants as soon as large enough in the same compost. Plant out in a frame by the end of March, as they make far better plants in this way than if they are put into pots or boxes. They should be planted at least 6in or 6½in apart. Allow just enough air to keep the plants nice and sturdy, and shaded from hot sun, or the young tender leaves will be blistered, and much of the beauty of the plant will be lost. Gradually remove the lights so that the plants are well hardened off by the third week in May.

It is not safe to plant them in their permanent place until June. The beds must not be manured prior to planting. If the beds were manured the previous autumn that will suit them splendidly. After the plants have got thorough hold of the ground weak liquid manure may be given them, but this is of most service when the plants are coming into flower. A dressing of Clay's fertiliser is very beneficial at this season if sprinkled over the beds and worked into the soil with a small Dutch hoe. It is of no use to water with manure water when

the beds are dry, always see that the beds are damp. After a shower is the best time. Fibrous rooted Begonias grown thus will be found equally successful. They can all be grown from cuttings, but they are never so sturdy as the plants grown from seed. I may add that I saw tubers lifted last October fully 4in across that were grown from seed sown the 20th of January, 1907.—W. E., Chertsey.

The Greenhouse Streptocarpus.

This beautiful stove and greenhouse plant has become very popular during the last few years, owing to the large amount of successful hybrids having been raised, and it is at the present time a plant of many splendid forms. Plants may be raised from seed or leaf cuttings, or by division of larger plants—the former methods for preference. In the early period of the plant's growth especially, the soil should never be allowed to get dry, or the plants be subjected to cold draughts, as either of these will inevitably lead to failure. The plants at this stage require a gentle heat and also moisture. They should be grown as sturdy as possible. A suitable compost is rich loam three parts, and leaf soil and coarse sand one part. The plants should then flower abundantly the second year, and are very useful for greenhouse and conservatory decoration, where the cooler and drier atmosphere induces prolonged flowering. A few of the principal varieties are Achimenesiflorus, Dyeri, blue; Gratus, purple; and Mrs. Heal, bright blue; all well worthy of cultivation.—INCOCNITO.

Petunias.

It is my intention to give, to the best of my ability, some practical hints on cultivating these somewhat neglected summer-flowering plants, which help to beautify all gardens. The seed should be sown now in pans, with a compost of leaf soil and peat of equal parts with a little silver sand. The pans should be well drained. It is advisable to water them before the seed is sown, as the tiny seeds are not then so likely to get washed into the soil too deep and so rot instead of germinating. Only the thinnest possible covering of soil is necessary. Place in a warm but fairly dry pit with a temperature of 55deg to 60deg. As soon as the seedlings have formed their third leaf prick off into pans or boxes. The compost should be slightly heavier than in the seed pan, which can be effected by the addition of a little loam, with less peat. Care should be taken that the roots touch the bottom of the hole made by the dibber, or the seedlings will get hung in the soil and go off. After pricking off place in a dry place with a temperature of about 50deg. When well rooted in the pans or boxes, pot into medium 60's, in a compost of loam and old Mushroom manure, with just enough sand to keep the soil open. When potted place on a shelf in a Peach house, out of reach of the syringe. Great care should be taken in watering them at this stage, keeping them neither wet nor too dry. The tips should be taken out to encourage the plants to grow bushy. When they are well rooted in 60's, those that are to be bedded out should be gradually hardened off. Place in a cold frame, giving them a free amount of air. After a few days, weather permitting, leave the lights off in the day-time, and later on during the night also, if no frost is likely to reach them. Petunias have a good effect amongst the plants in the conservatory, and are also useful for summer grouping. The best plants should be selected and potted on in 48's or even 32's, with the same compost as for 60's, for this purpose.

Some gardeners prefer cuttings to seedlings, especially of the double varieties. Cuttings should be taken in the autumn for this purpose, and kept through the winter. By the time spring arrives these should be good plants, and fit for taking young cuttings off for quick propagating. Very careful attention is necessary during the winter. Give them plenty of air when the weather permits, with no draughts. Watering during the winter is a most important feature, and should be exercised with the greatest care.—WILLIAM SPILLETT, Quex Park Gardens, Birchington, Kent.

Trade and Miscellaneous Notes.

Wm. Sydenham, Melbourne, Derbyshire.

Mr. Wm. Sydenham, of Viola and outdoor Chrysanthemum fame, has removed from Tamworth, on the borders of Staffordshire and Warwickshire, to King's Newton, Melbourne, Derbyshire, where a clearer atmosphere prevails.

Trade Catalogues Received.

J. Cheal and Sons, Lowfield Nurseries, Crawley.—*Dahlias*.

Cooper, Taber, and Co., Ltd., 90 and 92, Southwark Street, London, S.E.—*Agricultural Seeds: Wholesale*.

Ellwanger and Barry, Mount Hope Nurseries, Rochester, New York State, U.S.A.—*General Catalogue*.

W. B. Fordham and Sons, Ltd., 36-40, York Road, King's Cross, London, N.—*Garden and Sporting Requisites*.

Stewart's, 6, Melbourne Place, Edinburgh.—*Links and Lawn Grasses*.



Orchids.

DENDROBIUMS, A SELECTION OF VARIETIES.—The numerous species and hybrids belonging to this beautiful genus have been, and are still, providing a grand display. After being exhibited in such grand style recently at Vincent Square, it will be surprising if they do not come back again in general favour; for they certainly deserve to be grown more extensively than they are at the present time. I shall omit the thysiflorum section and those that flower in the autumn from this article, and confine myself to the showy group which includes the old *D. nobile* with its various varieties, such as Cooksoni, nobilium, and album; also *D.'s* Wardianum, aureum, signatum, crassinode, and primulinum. From the species just noted, many hybrids have been raised, which are always in the majority where Dendrobies are cultivated to any extent. One of the best is *D. Ainsworthi*, and it shows considerable variation, but the largest variety is known as *D. intertextum*, although it does not bloom so freely as the type. Other desirable hybrids are Cybele, Wiganix, Chessingtonense, Dulce Ophir, eusomum leucopterum, and rubens.

CULTURAL DETAILS.—To grow Dendrobiums successfully, a house or division should be set aside for them; other subjects could also be accommodated that need similar treatment. Failing this arrangement, the warmest structure must be utilised for the growing period, which begins almost directly the flowering season is over. As they pass out of bloom, and the new shoot is from three to four inches long, any repotting or re-surfacing may be done, because root action will soon commence; but all will not be in a fit state at one time, so keep the under observation and pot on when ready. Select pans or ordinary pots, which will just take the plants comfortably (overpotting will prove disastrous to this useful class of orchid), and fill them one-third their depth with drainage. The compost is made up of peat and sphagnum in equal parts, with the addition of a fair sprinkling of crushed crocks, among which the roots delight to ravel. Place them near the roof glass, and water sparingly for a few weeks till re-established. The surroundings, and between the pots, must be kept moist by frequent syringings and damping down. To prevent the roots becoming saturated, they may be set upon inverted flower pots; and for syringing and watering purposes, insist on the water being tepid, or near the temperature prevailing inside the house.

WATERING.—As the season advances, more water may be given, and the plants be sprayed overhead occasionally, while the shading must be thin and never overdone at any time. To keep them healthy and free from the spot disease, ventilation must be applied, especially a little from the top ventilators, whenever the weather is favourable. The house must be kept in a humid and growing condition, with a night temperature of 60deg to 65deg F., rising 5deg or 10deg during the day, or even more with solar warmth.—T. ANSTISS.

Hardy Fruit Garden.

STAKING TREES.—Owing to the violence of recent gales, attention must be paid to this detail of culture. At this season, before the foliage has developed, the wind does not as a rule disturb established trees so badly as later when in full leaf. Recently-planted standards, unless securely supported, are certain to have suffered, and all such trees should be examined with a view to making them secure and to fill in the holes made by the working of the stems of the trees. We have had Plums with heavy heads blown to the ground in summer, but by careful raising into position and adequate support afterwards, have seldom found them suffer to any great extent. There can be no doubt that for heavy trees on a wind-swept position, which have not obtained a very safe hold of the soil, the method of placing three strong stakes in triangular fashion has much to commend it, as it stays the trees from whatever quarter the wind sweeps.

PRUNING.—It may be safe to infer that but little of this work remains unfinished. It may be well to repeat the advice given here on previous occasions in connection with pruning recently-planted trees. We should always recommend cutting back newly-planted trees unless circumstances were exceptional; extremely late planting in dry soil might induce us to leave the work until the following autumn or winter, but our rule is to prune when the trees are seen to be on the move.

BUSH FRUIT QUARTERS.—Every effort should be made to get these made neat without delay. Fork over vacant spaces, turning in small weeds, and dig out any Couch or deep-rooting things. Care should be taken near the stems of the bushes not to unduly disturb the surface roots. Where this light digging was done early in the year, it will now be possible to run the hoe through the plantations when the soil is sufficiently dry. The earlier this can be done from now the better for the neatness of the quarters, even where weeds are not greatly in evidence, as numbers will be just germinating, and will thus be destroyed, saving much after trouble in weeding and hoeing.

GRAFTING.—It should now be possible to successfully deal with this work, whatever the nature of the stocks to be operated upon. Apples usually come last, but these ought now to be quite ready. Except for the renovation of old trees or for re-grafting unsuitable varieties on younger ones, grafting is seldom practised in private gardens. There being usually enough work in many other directions at this season. But where old trees exist which are not bearing useful fruit, and are not by lack of vigour beyond redemption, the method of rejuvenating is so easy of accomplishment by crown grafting, that such trees ought to be dealt with, usually well repaying for the trouble involved.—J. W., Evesham.

Fruit Culture Under Glass.

CUCUMBERS.—With increased sun heat a much higher temperature can be maintained, and this will necessitate a greater amount of atmospheric moisture, just the conditions that the plants delight in. On the other hand, in cold weather avoid hard firing, a night temperature of 65deg to 70deg will suffice, and 10deg higher by day, as in March we get most variable weather, and this means more care for a time, and careful ventilation. With bright sunshine allow the temperature to rise freely before giving air, say up to 90deg, and even then avoid cold draughts, as these plants are most sensitive. Young plants in a healthy condition are apt to produce fruits too freely; if this is allowed there is a severe strain on them, and a check. Later on the fruits should be well thinned, especially at the start, till they have ample roots and are covering the trellis freely. Stop the lateral shoots at one leaf beyond the fruit, and train in the terminal required for extension; remove any useless leaves and superfluous shoots. Top-dressing now should be given every fortnight; I prefer it thus to heavier dressing given less often; use good light fibrous loam and artificial manures—bonemeal is also excellent mixed with wood ashes or fine soil if the loam is at all heavy. Feed freely when watering with liquid manure in a tepid state, or water with a good fertiliser.

CUCUMBERS IN FRAMES.—Many persons are unable to devote a pit to these plants, but good results follow frame culture with manure for bottom heat; if two or three-light frames are placed on a good bed of prepared manure—but the manure if possible should be mixed with leaves to prevent too much heat at the start; indeed I have used a layer of soil when leaves were unobtainable when a large body of manure was placed in a brick pit. But the manure in any case is best when frequently turned and sweetened before placing in bulk, and it should, when in position, be from 4ft to 5ft deep, and to allow a good margin outside after the frames are fixed. The soil should then be placed on the manure, about two bushels under each light, and plant when the heat in the bed has declined to between 80deg and 90deg. If seed is sown when the bed is made up the plants will be ready by the time named; ventilate carefully at the start, shade during bright sunshine, and cover the glass at night with mats to retain warmth.

TOMATOES.—The winter plants will now be swelling their fruits freely, and will take occasional supplies of liquid manure, and with increased sun heat more moisture will be required with plants in small pots; indeed, with plants bearing freely a rich top-dressing will do good, this should consist of good loam, bonemeal, and wood ashes, and when watering a little nitrate of soda, used occasionally in proportion of about one ounce to a gallon of water, will help the plants. Closer stopping will be necessary, and all superfluous shoots removed, keeping to one growth and pinching out side shoots as they form. Plants sown early in the year should be placed in their fruiting pots when large enough; indeed, at this season spare plants may be placed in any available space under glass, and will give a good return in the early summer. Plants for summer fruiting under glass to take the place of the winter plants should now be sown, and for this purpose Carter's Sunrise is a splendid cropper, not a large fruit, but of splendid shape and quality.

STRAWBERRIES.—Where a regular supply is required plants must be brought on in batches, and much may now be done with cold frames. Plants on shelves will now dry more quickly and require more moisture. Early thinning is important with plants just set; indeed, I found it a good plan to thin the flowers, removing the weak ones; earlier plants should be kept clear of green fly.—G. W., Brentford.

The Plant Houses.

WATERING.—At this season of the year perhaps more than any other is careful watering necessary. There are many newly-potted plants in the houses, the watering of which requires closer attention than those which have filled the pots with roots. There being no active roots in the new soil to absorb the water, an excess of moisture will soon turn it sour. On the other hand, the old ball of the plant must not be allowed to get dry. The frequent syringing, more particularly in the warmer houses, if done heavily is liable to keep the surface soil wet while the remainder in the pot is dust dry.

SEEDLINGS.—As the result of many seeds sown in January, there will now be work pricking the seedlings out into pots or boxes. This should be done as soon as they can be conveniently handled, or they may become crowded and drawn. Begonias, Gesneras, Gloxinias, Streptocarpus, and similar plants, it is usual to do in quite a small state. A very suitable method is to prick the seedling plants off moderately close together in pots, about twenty-five in a 5in (48-size) pot for instance. Half fill the pots with broken crocks, on this place a layer of rough soil, topping it up with fine sandy soil, raising it in the centre of the pot. Treated in this way, and placed in a warm moist house, the young plants make rapid progress. The next shift will be either to pot them off singly in small pots, or transfer them to boxes.

PELARGONIUMS.—There are few if any plants used for greenhouse decoration with more brilliant coloured flowers than the zonal Pelargonium or Geranium. To obtain plants for flowering in autumn and winter, cuttings should be inserted in March. New varieties are being constantly introduced, the majority of them being improvements, either in size of flower, colour, habit, or some other detail. For greenhouse decoration the singles are more popular, but for cut flower work the double sorts last better. The plants flower freer if the roots are somewhat restricted, so do not overpot; 5in pots for the smaller plants, and 6in for the larger will be found suitable. The plants, cuttings of which were rooted last August, for flowering during the summer, may now be allowed to throw up flower buds. The plants of the Ivy-leaved section should be gone over, top-dress, or repot those requiring it. Large specimens of these, covered with flowers, are very effective either in the conservatory or growing in tubs on the terrace.

MISCELLANEOUS REMARKS.—There are plenty of young growths on the Fuchsias recently started, more particularly on those which have not been pruned. Previous to cutting them back, a number of the shoots may be inserted as cuttings. The plants of Rhododendron (Azalea) indica, which were brought into bloom in the forcing house, should be placed in a warm house, with a night temperature of about 55deg F. to make their growth, as they are taken out of the show house. A few, especially amongst the smaller plants, may require a shift into a size larger pot. Annual repotting is neither necessary or advisable. Bring in the remainder of the trees and shrubs for forcing, also the bulbs, to obtain them in flower previous to those growing outside. Very little heat is now required to get them into flower. Give the pots of Freesias as they pass out of flower a light position in a house or pit. On the treatment given now the amount of flowers obtained next year depends. Weak applications of manure water will be beneficial. Have the blinds fitted to the more important houses, as bright sun (a rather rare occurrence with us so far this year) will soon damage choice flowers and seedlings.—A. O., Kew, Surrey.

Schedules Received.

The Bath Floral Fête; secretary, Mr. B. R. F. Pearson, 17, Argyll Street, Bath. The summer show will be held on July 8 and 9. There will be no autumn show this year.

Brighton and Sussex Horticultural Society; secretary, Mr. J. Thorpe, 53, Ship Street, Brighton. There are three shows: April 7 and 8; August 18 and 19; and November 3 and 4.

Croydon Horticultural Society; secretary, Mr. A. C. Roffey, 55, Church Road, Croydon. The forty-first summer show will be held at Haling Park, Brighton Road, on Wednesday, July 8.

Newcastle-upon-Tyne Flower Show (secretary, Mr. J. Wilfred Pace, Emerson Chambers, Blackett Street, Newcastle) will be held in conjunction with the Royal Agricultural show, July 1, 2 and 3.

The Ancient Society of York Florists; secretary, Mr. Geo. F. W. Oman, 38, Petergate, York. Five shows will be held: April 15, May 20, July 8, September 2, and November 11, 12 and 13.

Weybridge and District Horticultural Society; secretary, Mr. J. Lock, Oatlands Lodge, Weybridge, Surrey. The tenth annual summer show will be held on July 9, and the autumn show on November 4.



All Correspondence relating to editorial matters should be directed to "THE EDITOR," 12, MITRE COURT CHAMBERS, FLEET STREET, LONDON, E.C. Persons sending manuscript or photographs, when not specially requested by the editor, and making no demand for remuneration, are presumed to solicit publication without payment. In order that no misunderstanding may arise, and in order to secure the return of their contributions, contributors should state the fact that they expect remuneration, and in all cases, even when contributing voluntarily, correspondents should enclose a stamped envelope if they expect their enclosure to be returned.

TOMATO FRUIT (F. C.).—We placed the curiosity before the R.H.S. Scientific Committee, who will report.

SEAWEED FOR STRAWBERRIES (J. E.).—We have employed seaweed as a manure, and have always found it beneficial not only to Strawberries but to all kitchen garden crops.

COMPOST FOR FUCHSIA FULGENS (D. L. G.).—It succeeds in turfy loam, with a third of leaf soil or a fifth of thoroughly decayed manure and about a sixth of sharp sand. The spray sent is not a fern but a Lycopod—viz., *Selaginella caesia*.

APPLE (H. Knowles).—If you will inform us of the district in which the Apple to which you refer was cultivated, also the period of the fruit ripening, we shall be better able to answer your question. The Apple, however, may only be a local variety.

PALMS FOR GREENHOUSE AND STOVE (Young Gardener).—*Chamaerops Fortunei*, *Latania borbonica*, and *Seaworthia elegans* would succeed in a greenhouse temperature. The others you mention require to be grown in a stove. Employ as soil good fibrous loam and sand, well draining the pots, and be careful not to overpot the plants.

GLASS FOR CUCUMBER HOUSE (W. A.).—Clear 21oz seconds will answer your purpose much better than rough glass. If a slight shade is required during hot weather a little limewash applied to the glass with a syringe will prevent scorching, and the first heavy shower will render the glass clear again; but with good soil, judicious watering, and careful ventilation we seldom find it necessary to shade Cucumbers.

AZALEA SHOOTS EATEN (C. T. B.).—The shoots appear to have been gnawed by rats or mice. We have known rats gnaw Vine stems through, and destroy the fronds of ferns in numbers. Try a few spring traps. There is evidence of thrips on the leaves, which may be destroyed by fumigation with tobacco.

GARDENIA FLORIDA (J. P.).—The above is the name of the spray you have enclosed. Your plant is in a very unhealthy state owing to defective root action or a too low temperature. It requires a warm stove temperature of not lower than 65deg at night and a moist atmosphere, and if the pot can be plunged in a bottom heat of 80deg it will be of great benefit. It should be potted in a clean well-drained pot, using turfy peat and silver sand until fresh roots are produced, when a stronger compost may be employed. Water carefully, and syringe the plants twice a day during favourable weather.

FLOWERING CLETHRA ARBOREA (R. C.).—The *Clethras* you referred to which have bloomed so freely lately, are growing in similar compost to your own—viz., sand and loam. In this respect your treatment is correct; but if you keep your plants in the greenhouse all the year round, or shade them in any way in summer, this will prevent them from blooming, as it is very necessary that the flowering wood should be thoroughly ripened in autumn. To ensure this the plants are grown out of doors from the middle of May until the middle of October, and after then they bloom quite naturally throughout the winter. Place your plants out of doors this summer, have the wood well ripened by the end of September, and you will have plenty of flowers next winter.

NAMES OF PLANTS.—Correspondents whose queries are unanswered in the present issue are respectfully requested to consult the following number. (X. Y. Z.).—*Pancratium fragrans*. (Costa Rica).—The orchid was *Bletia acutipetala*. (H. D.).—*Pelargonium* (or "Geranium") Mrs. Pollock; *Croton Laingi*; *Gesnera cardinalis*; and *Calanthe Regneri*. (Sender of *Cypripedium*).—*C. villosum*.



Permanent and Temporary Pastures.*

We are often struck by the fact that so great a quantity of excellent reading matter may be obtained for the small sum of 1s. It is a useful convenient coin that 1s.; a happy medium of exchange; and a man or woman must be very poor who cannot afford a 1s. outlay every now and again to provide some mental food.

Now, it would be difficult to find a writer who knew more about his subject than does Mr. Martin J. Sutton about "Permanent or Temporary Pastures"; in fact, we think it more than probable that he has forgotten more than most of us ever knew.

As far back as the seventies Mr. Sutton, senior, published in pamphlet form a short paper on permanent pastures. In 1880 it was found necessary to enlarge and revise the work, and this task was undertaken by Mr. Martin J. Sutton. The total number of copies in the six editions already issued is 25,000; and now in 1908 appears this cheap edition, revised and brought up to date. Started by the father, enlarged by the son, and further assisted by the grandson, really we have the accumulated experiences of three generations!

The first chapter is devoted to the extension of pastures, and at this present moment permanent grass lands exceed the arable by 3,033,874 acres. Why is this? One cause is that the wheat area has dropped since 1870 from 3,500,543 acres to 1,755,609 in 1906. Why, again, is this? The low price of corn, the reduced capital of agriculturists, and the increased cost of labour—all very potent factors indeed.

Mr. Sutton goes on to say that now, owing to the large imports of foreign wheat, the English farmer looks upon the corn rotation as a necessary evil, involving the most unremunerative outlay of the whole course. Diminished capital renders it impossible for the farmer to till the land so as to secure the largest possible produce. Then comes the question of labour. There is not a sufficiency of good labour to be found in the countryside, even when the farmer is prepared to pay for it at a remunerative rate. The labourer has gone to the towns, and will not easily be tempted back to the land.

Grass land does not produce so much food per acre as arable, and therefore the nation suffers; but as only fools could be expected to till soil at a ruinous sacrifice, what other course is open? Therefore, such being the case, if land must be laid down to grass, it had better be done well in the first instance, and thus future worry and expense are saved.

Now, while wiseacres believe and preach that all land can be profitably cultivated, Mr. Sutton does not allow that all land can be profitably laid down to permanent pasture. He knows that there are the forces of Nature to contend with, and the man that strives to coerce Nature will find he has a profitless job. But there is another form of cultivation, a form which we believe is much more conclusive to wealth than laying down permanent pastures; we refer to temporary pastures. By temporary we mean periods varying from two to four years. By this means excellent crops are obtained at a minimum of trouble and expense, and these pastures, when ploughed up, afford the best of preparation for other valuable crops.

But as Mr. Sutton knows full well the value of the best grass seeds, he is also very anxious that these seeds should be treated with due respect. He does not advocate "sowing besides all waters," and he is perfectly aware that nothing good can be done without due preparation, and on this he insists most forcibly. He suggests first how our present grass land may be improved, and he urges the necessity of a thorough drainage system in the first instance. That is, where drainage is required, and it takes no very practised eye to see that. We often see, but oftener do no more than see. We know the remedy, but fail to apply it.

Undrained soil produces vegetation certainly, but of that kind and nature not palatable to stock; and as the stronger growths will always outcrowd the delicate roots and plants, seeding land of that nature means only time and money lost. Land constantly saturated with moisture is not capable of receiving full benefit from sunshine, nor do rains soak in, conveying their tribute of nitrogen. A full sponge can hold no more: the surplus runs off. Also (and this is a great matter both regard to the growth of vegetation and also to the comfort of stock) this wet land is always cold. It cannot but be so;

* Simpkin, Marshall, Hamilton, Kent, and Co., London.

hence the spring growth is late, and the autumn growth ceases early. Low damp land is always first affected by frost.

Draining is always expensive, and sometimes very inefficiently done; but drainage for grass need not be of such a costly nature as drainage for arable land which has to bear the weight of cultivating instruments. The drains can, with advantage, be placed nearer the surface. England as a country has benefited in the past by reason of splendid systems of drainage which have made of stagnant morasses fruitful fields, and we owe much to large-hearted, free-handed landowners as well as to wise far-seeing Governments.

As to cultural preparation before laying land down to grass, permanent or otherwise, Mr. Sutton pleads for nothing but the best. The crop is of such importance, the seeding so costly, that no pains must be spared to make the seed bed a perfect one. If possible, choose the best land in the first instance—heavy loams, strong clays, these give abundant returns if properly treated. The soil; well, a garden must not be cleaner. No vestige of weed to choke and to destroy the tender seedling; no rough clots to prevent even seeding; no raw, crude manure to injure the delicate rootlets; a rich mellow soil, made so by previous manuring; in fact, an ideal soil. This is sometimes hard to come at, and can only be obtained by much labour and the best of climatic conditions; but when once carried out and thoroughly, there's money in it.

Successful seed growing depends first on the seed bed, which should be firm and dry enough not to clot. Then the seed itself must be evenly distributed, and we quite agree with the suggestion that it is best to sow it twice—up and down, and then across. To lightly cover with soil, a brush-harrow or light iron harrow must follow. It is so easy to bury good seed past hope of resurrection.

Now then for consolidation. Quickly after the harrow comes the roller. That implement that plays such a part in the skillful management of all seed crops. "When in doubt, play trumps"; but we often think that there is another axiom of far more importance. Weather permitting, set the roller to work.

Does the young seed crop need a foster-mother? Well, that depends. Most farmers prefer to have the mother—a light corn crop to shelter and shield the nurslings. The corn crop should be light, or else the very object of its being is defeated. Care, not coddling; shelter, not smother. The ideal plan would be to cut the corn before it got too forward, so as to give the second crop a better chance to mature. A use could always be found for this green fodder on the farm. We should fancy that the majority of farmers would vote in favour of spring sowings, although Mr. Sutton speaks of good crops from autumn sowings. The uncertainties of winter have to be reckoned with, and this is a fickle climate. The habit of growth and food value of every possible kind of seed is here discussed, and no farmer need be at a loss who reads this book as to what to do and how to do it. Mr. Sutton can point out no cheap way, nor can he suggest cheap mixtures. Nothing pays like the best. Be content with a small area well tilled and suitably seeded. He who sows weeds or rubbish not only suffers at the present, but in the future. We can most heartily commend this book to farmers, old and young; the man with the great acreage, and the small occupier with three acres and a cow.

Work on the Home Farm.

We have rain almost every day, but no great fall, and as we have very strong equinoctial gales, the land is becoming more workable. We are not hurrying the sowing, however, for a few more days of this wind would create dust, and if the sun would shine a little more there would be a splendid seed-bed for barley.

Meanwhile, we are keeping the turnip land ploughed close up, and are reploughing a field eaten off in the autumn. This land turns up in fair condition, and we shall not move it again until we can harrow, drill, and harrow-in, as one day's operation.

We are ridging out the land for potatoes, but although we should like to be planting, the furrows make a very cold seed-bed just now. After a day or two's sun, and a continuance of the drying winds, the conditions would be admirable.

We have had a long experience, and we have always found potatoes do well when they were put to bed warm. The boom in fancy varieties a few years ago perhaps made the seed too warm, and at the present time, after matters have cooled down, we cannot raise enthusiasm enough to discuss the degrees of mediocrity of our so-called best varieties.

We are ploughing our land over for swedes, because we want the work out of the way. There may be a few "bootlaces" left, but we shall find them before we drill.

Lambing goes on well, and reports of the fall of lambs improve. The chief losses seem to have been from abortion, but the actual lambing is healthy.

The measures which were recently taken to prevent sheep worrying do not appear entirely successful, for we have a case

in this parish of fox terriers with collars on worrying young lambs at 10 o'clock in the morning. Of course, the damage is brought home to their owner and paid for, but whether the amount paid covers the whole of the damage is a very doubtful matter.

We think that the carelessness of shepherds often leads to these lamb and sheep worrying episodes. A shepherd loses a fine lamb from curd on the stomach, or navel trouble. He happens to be busy, and instead of burying it, leaves it lying about. A hungry dog finds it, and has a feast. When he comes again for another feed, finding no dead meat ready to hand, he kills some for himself.

International Horse-jumping Competition at Rome.

The Board of Agriculture and Fisheries has received through the Foreign Office information from the Italian Government stating that an international horse-jumping competition and steeplechase will be held at Rome from the 29th April to the 5th May next, under the patronage of the King and Queen of Italy. The programme includes competitions (1) for officers' chargers ridden by their owners, who must be actually serving in the regular army, and (2) for horses of any age or breed mounted by duly accredited gentlemen riders. Applications must be received before the 15th April by the Associazione Nazionale Italiana per il movimento dei Forestieri, 52, Via Colonna, Rome. Particulars as to the rules, entry fees, and prizes may be obtained at the offices of the Board of Agriculture and Fisheries, 8, Whitehall Place, S.W., where plans of the course may also be seen. Any horse sent to compete from this country will require to be accompanied on its return to Great Britain by a certificate of a veterinary surgeon to the effect that he examined the animal immediately before it was embarked, or whilst it was on board the vessel, as the case may be, and that he found that the animal showed no symptom of glanders.

The Utility Poultry Club's Twelve Months' Laying Competition.

The competition arranged by the Utility Poultry Club for demonstrating the laying capacity of poultry has been running for five months, and the results to February 29 have been published. Twenty pens of pure-bred pullets are being kept for a year under the supervision and management of the hon. secretary of the club, Mr. E. W. Richardson, on his farm at Rayne, near Braintree, Essex. The birds have come from all parts of the country for the test, and each pen has a separate house with two runs used alternately. The number of eggs laid by each pen is as follows:—1st, white Wyandottes, 425; 2nd, ditto, 393; 3rd, ditto, 379; 4th, ditto, 341; 5th, white Leghorns, 326; 6th, white Wyandottes, 322; 7th, buff Plymouth Rocks, 312; 8th, white Wyandottes, 309; 9th, ditto, 301; 10th, buff Plymouth Rocks, 279; 11th, white La Bresse, 273; 12th, white Wyandottes, 257; 13th, buff Plymouth Rocks, 253; 14th, black Wyandottes, 223; 15th, barred Plymouth Rocks, 211; 16th, Houdans, 209; 17th, white Leghorns, 208; 18th, ditto, 180; 19th, partridge Wyandottes, 156; 20th, white Leghorns, 132. The best total for the month was obtained by the 10th pen (buff Plymouth Rocks) with 114 eggs, a very creditable performance, having regard to the 102 eggs laid in the previous month. The next best were the 3rd, 2nd, and 1st pens with 109, 104, and 93 eggs respectively, as against 110, 96, and 87 in the month before. Twelve of the birds laid twenty or more eggs each in the twenty-nine days. No very startling change in the position of the pens has taken place, the first nine pens remaining in almost the same order. The tenth place is taken by a pen which was thirteenth the previous month; but with a record of no eggs at all for the first two months when eggs were valuable, this position hardly represents the nearness of the pen to the prize-money which is to be awarded to the pens producing eggs realising the most money. The pen of La Bresse has fallen from seventh place to eleventh, which perhaps is not surprising, as half the birds are broody. In the third month this pen was third, and in the first month eighth. It contains a pullet which laid seventeen eggs in the second month and only three in the other four months! The manager reports that the health of the birds remains good. The weather during the first part of the month was fine and dry, but later there were high winds and showers with frost and slight snow. A number of the pens are mated up, and the proceeds of sittings sold are being applied towards reducing the heavy expenses of competing.

OAT EXPERIMENTS.—HEAVY CROP.—The report of the Harper Adams Agricultural College (Newport, Salop) field experiments for 1907 has just been issued. It shows that in the important oat trials conducted on the College Farm, the variety which came out top both for yield of grain and value per acre was Webb's New White Horse. This produced no less than ninety-five bushels per acre, and the report further states that "the straw was of good quality, and stood well." Other well known sorts, such as Thousand Dollar, Banner, Abundance, Universal, Highlander, &c., were included in the trials.

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Journal of Horticulture.

THURSDAY, MARCH 26, 1908.

The Longevity of Vines.

THE other day an old gentleman was in sore trouble because his antiquated gardener had gone over to the great majority, and he was reduced to the necessity of having to engage another one. "I know what will happen," said the old gentleman; "as soon as he (the new gardener) gets here he will say the old Vines are worn out, and he will want to do away with them and plant fresh ones. The Vines may be old, and I've had them a long time. We're old friends, so to speak, and they're good enough for me. No, I won't do away with them, no matter what the new man says; but he'll want it, I know—all fresh gardeners do."

How the old gentleman settled the point with the new gardener does not matter, but there is an impression on the part of certain employers that nothing gives a fresh gardener so much pleasure and momentary satisfaction as pulling old Vines out, making new borders, and planting fresh canes. Is there any ground for this impression? The question is one for gardeners to answer, but there certainly is a tendency on the part of some members of the fraternity not to make the best of things when they enter a new situation, but rather to find fault with the work of their predecessors, and express a desire to do away with existing institutions in the shape of old Vines, Peaches, and other fruit trees. It is hardly a wise course; in fact, it is mean to enlarge on the shortcomings of one's predecessor; and as for the old Vines, it is better for the new gardener to find out at first how much regard and affection his employer has for the canes, ancient though they be—whether he is satisfied with the Grapes they produce, and, most important of all, whether it is not possible to improve the Vines as they are without going to the drastic extreme of rooting them out.

The possibilities of a Vine are great, and this must be realised when one thinks of the world-

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famed specimen at Hampton Court, and the more modern but equally wonderful Manresa Vine at Putney. Fancy any one suggesting to the powers that be that the Hampton Court Vine was worn out, and that it would be better to do away with it! Such a thing is too absurd to be thought of, and, on the other hand, we hear of the old Vine being subjected to cultural treatment with the object of rejuvenating it, and making it more fruitful. If this is possible with a patriarch that has grown old with the nation, and is one of the latter's institutions, surely there is some excuse for owners of gardens who have got old Vines, and are fond of them, being averse to rooting them out, without a special effort to improve their condition, assuming that this is unsatisfactory.

In connection with this topic let us take an illustration from life, a story that is true, omitting only names, as it would serve no purpose to insert them.

Nearly thirty years ago a certain gardener took charge of several Vineries in an establishment belonging to an ambitious gentleman, who was not fond of changes. The Vines were not young, and they enjoyed a certain reputation, because Grapes from them had won cups and prizes in open competition in the years gone by; but the successful Grape-growing gardener had left, others of a different order had followed; the Vines had been allowed to go from good to bad, and from bad to worse, till at the time of which we write they were in a poor way indeed, and, as some would put it, worn out.

The gardener, however, did not follow the usual course, and advise pulling the old Vines out. On the other hand, he saw possibilities in them, and by simple but thorough methods of improvement, such as lifting the roots, top-dressing, feeding, and, above all, attending personally to every detail of cultivation, an alteration was effected. The old Vines responded to the treatment; they grew healthy and vigorous; shanking disappeared; both bunches and berries got bigger every year, and the latter carried a heavy bloom that had been unknown amongst them for years. Experts called at the place from time to time, and were astonished. "Why not exhibit the Grapes," they said, "it is a shame not to," and the owner being willing, and the gardener ambitious, the old boxes and stands of other days were unearthed from the lumber room, and for the second time in their history bunches of Grapes from the old Vines won prizes at big shows, both in London and the provinces, with just the difference that both bunches and berries were better than ever they had been before. One of the few heirlooms that the gardener left when he was called across the river was a gold medal that he won with the Grapes from the old Vines that he loved so well.

But the story is only half told, for when the Vines were at their best the gardener was offered another appointment, and left the place. His successor only stopped a short time, when he was followed by another and another, each of whom had his own ideas of Grape growing, none of which were good, and the Vines went back, little by little, until they were as bad as ever they had been, and the latest gardener to arrive advised rooting them up and planting afresh. Ten years passed away, and by a curious arrangement of circumstances, the gardener who had renovated the Vines again took up the management of the establishment.

Both he and the Vines were older, but he possessed skill and an inborn love for Grape growing, while they had the possibilities. The old process was repeated over again, and under the care of a master hand the dilapidated Vines began to look up again; bunches got bigger, berries a better colour, crops heavier; and even the novices who saw them from time to time marvelled at the improvement. For a third time in their history the Vines grew Grapes on the original spurs good enough to win prizes in the best of competition, and the reason why they did not do so was that the gardener had grown older, his health was failing, and he had no longer got his spurs to win.

This is not an exaggeration, nor a fanciful illustration to drive home an argument, but a perfectly true story that could easily be substantiated; and a moral adorns the tale. There may be young men who have just taken their first charge as head who will perhaps read this article. They may be taking to Vines that are in a bad way, and appear to be beyond renovation. Possibly the owner, who pays the piper, and consequently has a right to call the tune, has a sentimental regard for the Vines, and is averse to doing away with them. If so, the young gardener will be wise not to press his case too far. Let him rather consider the possibilities of the Grape Vine, and remember that it has never yet been proved at what stage a Vine is actually worn out. As in the instance I have described, the Vines may only want the care and attention of a good cultivator, and given this they will respond in a way that perhaps only a Grape Vine can.

As for the grower—well, he will feel that in improving an old Vine he has accomplished more than if he had grown even better Grapes on newly-planted canes. It may suit the purpose of the market Grape grower to plant young Vines, force them to their utmost capacity in cropping, and when vitality declines

do away with them and plant afresh; but Grape Vines in a private establishment are a different matter. In more cases than not they are protected by a feeling of sentiment, which a new gardener, if he values his own interests, should endeavour to respect; and he can do it by a fair attempt at improving them before he advises the rooting out process.—H.

During the past few years the method of destroying various insect pests by means of fumigating with hydrocyanic acid gas has been much advocated, and the recommendation has been made in a leaflet from the Board of Agriculture and Fisheries. For the destruction of mussel scale, woolly aphis, mealy bug, thrips, weevils, and red spider in greenhouses, &c., the method is very valuable, while it may also be employed for the fumigation of poultry houses in case of infestation by lice and mites. Nursery stock fumigated with hydrocyanic acid gas before planting will be freed from insect enemies in all stages save that of the egg. The materials necessary for purposes of fumigation are:—(1) Potassium cyanide of 98 per cent. purity; (2) sulphuric acid of a specific gravity of not less than 1.85; (3) water; (4) jars and a glass measure. The following quantities may be taken as a standard for use:—Potassium cyanide 1 part, sulphuric acid 1½ parts, and water 3½ parts. The proportions of cyanide, sulphuric acid, and water to be used, and the amount of space per unit of cyanide, very slightly as recommended by different authorities, three different workers recommending one ounce of cyanide of 98 per cent. purity to every 200 or 300 or 500 cubic feet of space respectively. The variation in the amount of cyanide depends to some extent on the character of the plants that are being treated, on their strength, whether they are dormant or active, evergreen or deciduous, and also on the season. In the case of tender plants, one ounce of cyanide may serve for 500 cubic feet of space, while hardy plants may be treated with one ounce of cyanide to 200 cubic feet of space.

The glass house or other place which is to be treated must be rendered as airtight as possible. The sulphuric acid should be poured very carefully and slowly into the water, which may be put in an earthenware vessel, e.g., a large jam jar. The cyanide of potassium, wrapped in thin blotting paper, should then be dropped into the now diluted sulphuric acid. The vessel into which the cyanide is dropped must be so near the door that it can be reached by the outstretched arm of the operator, who should immediately shut the door and close up its chinks by paper previously prepared. Another, and better method is for the operator to introduce the cyanide to the diluted sulphuric acid through a window, the cyanide being placed at the end of a long stick or rod, or be lowered into the acid by a string and pulley. The window must be closed immediately after the addition of the cyanide, so that the operator may escape the fumes. Strawson recommends the pouring of the diluted acid from a bottle fitted with a cork in which two slits are cut, one to let in air and the other to allow a small and even stream to flow upon the cyanide, the object being to provide a slow and even disengagement of gas. The bottle should be arranged so that it can be tilted up when all is ready. It is of importance also that the hydrocyanic acid gas fumes be distributed over the house, and this may be done by an arrangement of fans which can be worked from the outside. Fumigation should take place in the evening, or after nightfall, and not in strong sunlight. The temperature of the house should be from 50deg F. to 60deg F. The plants to be treated should be dry. The surface of the soil of the house should also be as dry as practicable. Experiment has shown that the eggs of the woolly aphis may remain unaffected, and therefore fumigation should be repeated in ten days. Eggs of the Apple mussel scale are also unaffected by gas of the strength mentioned.

The treated room or conservatory must be kept closed during fumigation from three-quarters of an hour to an hour, after which the room should be ventilated, the windows, &c., being opened from the outside, and no one should enter until an hour has elapsed. While opening the windows, &c., the operator should be careful not to inhale the escaping fumes. It is safer not to fumigate when the plants are in bloom. In the treatment of nursery stock the bushes or young trees should be placed in an airtight box or canvas tent of known capacity and subjected to the fumes of hydrocyanic acid gas for one hour. Large numbers can be treated at once at little expense. When the time has expired the tent or box should be opened in such a way that the wind blows the fumes away from the operator, and should be left to ventilate for half an hour before the stock is removed. Trees in the orchard may also be treated by the use of a canvas tent or cover.

As both the potassium cyanide and the hydrocyanic acid gas are deadly poisons, the former should be kept in a tightly stoppered bottle and labelled "Poison," whilst the gas as generated must on no account be breathed. Fumigation should not be carried out in a high wind, nor when the trees are wet, but otherwise it may be done at any season of the year.



Collecting Orchids in Their Native Wilds.

There are many things intermixed with orchid collecting that to many people seem out of place; yet, often on these various things may depend the success of several months of labour.

In the countries where the orchids flourish everything is different from what it is in the northern latitudes—climate, people, and the invariable lack of transportation, except by mules or oxen, or by canoes, or rafts on the rivers.

I particularly refer to conditions such as they are in South America. (The East Indies it has not been my fortune to see.) Thus, in short, an orchid collector's life is not an easy one by any means; even under the best of conditions. There are, of course, several kinds of collectors; some have it, or take it, comparatively easy. There is, for instance, the man who is sent out by some firm to secure a certain kind of plant; to get so many boxes full and return home. The locality in which to obtain the plants is possibly indicated to him, and the man, as a rule, follows the beaten tracks or highways to some town or village where he makes arrangements for a certain quantity of plants and returns home; the trip lasting six months, possibly eight or nine months. He has obtained the plants, and let us hope they arrived at their destination in good condition and everybody was satisfied. This kind of collector is the one who has the easiest time, but he will know very little of the country, its nature, its geography, and its flora in general, and he is not the man to find new fields. He will go where someone else has been before and opened up the way, if he changes place at all. The other man is one who is in love with his work, and one who wants to see the marvels of the Creator in all their splendour, and to satisfy this desire he must undergo untold hardships. No beaten tracks will serve his purpose, but he must plunge into the wilds on mule back, up and down streams and rivers, in canoes and rafts, and not infrequently on foot.

EXPLORATION AN ESSENTIAL.

In looking for new fields, exploring the country is absolutely necessary. It is not enough to know that plants can be obtained, but the collector must know his territory, position of the country, its rivers, its mountains, and hence he must figure out how the plants can be moved, without which his labours will be in vain. To illustrate this I will mention an incident on one of my trips. I had struck my Eldorado in the form of a virgin Cattleya district. No man before had ever robbed this forest of its jewels, and to the best of my knowledge no one has been there since. The plants and the varieties were superb, but the problem was how to get them out. The nearest I could get to a point from which I could secure transportation with certainty was fifty miles, but from where I was I could strike the same river at a point considered not navigable in about six hours. I reasoned that if there was water in the river, even if there were plenty of rocks in it, and the current strong, I could float my plants down in champafes (large canoes), and I set to work accordingly. I packed my plants at night in bags and sent twenty-five or thirty loads down to the river, where I had tents pitched. The mules were unloaded and returned for more, until I had the entire lot moved. Now commenced the real battle; I had to go down along the river a considerable distance and try to induce some of the owners of boats to come up where I had the plants; but as they had not done so before, they reasoned that it could not be accomplished. I was determined, however, and after considerable arrangement I succeeded in convincing two parties that it could be done, with the result that we started to ascend the strong current. I returned to my plants; waiting for the boats for several days, when suddenly a freshet came rushing down the river, swelling it out of all proportions. I had the plants on a knoll near the river; in a few hours the water cut behind us and we were on an island, helpless; we had to abandon our tents, the water eating gradually toward the plants; and it seemed a question of a few minutes and all would be lost. Suddenly the waters stopped advancing (this was during the night) and plants and all were safe. The boats were caught in the freshet, and had to tie up to some rocks, and as the water rose in the river the party had to cut away trees and branches in order to save themselves. In the evening they arrived. We loaded the plants by candle-light and started down stream early the next morning; everything went well, our champafes racing down the rapid current like feathers, missing stones or rocks by inches or less, but the net result was that I got the plants out. Now, in working on these lines, the collector will get a fair idea of what the country

is like, and in no other way. He will also know where and how most species grow, so that he can at any time put his finger on the map and point out where the different plants occur.

SECURING A BASE OF OPERATIONS.

A very important matter for a collector in getting any kind of orchids is to find and select a good central place to serve as a base for his operations; a place as near to the mountains as possible, and at the same time a place from which the plants can be moved when packed without too much expense. It is also important to know that the varieties are good, as a shipment of plants of a poor type costs as much as that of a good type. To ascertain this will sometimes consume considerable time, but it pays as a rule.

For a base, any old building or ranch will do; if none is to be had one must be built in which to store the plants, make boxes, &c. Personally, however, I very seldom used buildings for this purpose, owing to the fact that in most instances I was in places where none could be had. I had large tents made, and when these were not large enough to accommodate everything, I bought cotton goods and mounted a skeleton of stakes and bamboos in the shape of greenhouses. Over this I stretched the goods, one piece overlapping the other, in order to shed water. This kind of structure I found to be very good in more ways than one, and I could work independently and be close to where the actual collecting was going on.

As soon as the base is selected lumber must be secured. This is a tedious operation, as it is cut by hand, and arrangements for it cannot begin too soon. In places where I found it impossible to procure any, on account of scarcity of men to saw the logs into boards, I used coffee bags cut open and put two of these crosswise in a box without bottom, the box to serve as a form; then placing a good layer of palm leaves in the bottom I packed the plants in layers very firmly, and at the top as a last layer more palm leaves; then drew the bags together and sewed them with string. When taking the box away there remained a square firm package. In this way I moved the cargoes considerable distances to places where I could pack the plants in wooden boxes.

COLLECTING, PREPARING AND PACKING CATTLEYAS.

I will speak of the various South American countries chiefly, as they are the home for all of our Cattleyas. These orchids occur all the way from Honduras, Guatemala and Costa Rica in Central America, and down through Colombia, Venezuela, Ecuador, some in Peru, and again in the Guianas and Brazil.

The collecting of the orchids and the preparing and packing them for shipment are more or less the same in any of the South American countries. Men are sent out in every direction, covering as large a territory as possible, in order to secure the plants in the least space of time. As a rule, two or three men band themselves together, and take provisions enough to last a week or more. They are armed with the indispensable machette, and axes, occasionally, also with shot guns; and carry string bags in which to bring out the plants. These men bury themselves in the woods, and when plants are sighted the trees are as a rule cut down, unless the plants are found quite low down. To climb the trees is no easy task in the tropical forests where there is a network of climbers and other vegetation around the trunks. There is also the possibility of poisonous insects, snakes, and scorpions being hidden in the plants; hence very few men will undertake the climb; but, whatever mode is chosen, the plants are loosened from the trunk or branches by running the machette under the plants; when once loose they are tied together with some kind of string, put in the bag, and the march continued until another plant is found. Toward night the men return to their camp, where the plants are spread out under some tree to protect them from the sun, and at the end of the week's labour the plants are carried on their backs to the ranch. Here they are spread out on shelves made of stakes to await the proper time for the packing.

THE MOST IMPORTANT FIELDS.

The most interesting and most important fields for collectors are, undoubtedly, Colombia, first; second, Venezuela; and third, Brazil. I place Colombia first because I believe its flora has no equal in the world; and, taking orchids especially, I doubt very much if another region can be found where such great numbers of species occur.

We find in Colombia eight different kinds of Cattleyas, namely: *Cattleya gigas*, *C. gigas Sanderiana*, *C. chrysotoxa*, *C. obocensis*, *C. Trianae*, *C. bogotensis*, *C. Mendeli*, and *C. Schrödera*.

Cattleyas gigas has a very large territory scattered over several mountain ranges of Antioquia; in some localities the types are superb, to say the least, while in others they are poor. In a few isolated places the beautiful *C. chrysotoxa* occurs, but in such small numbers that collecting it would not pay any longer. This *Cattleya* grows on the lower slopes of the mountains in warmer places than *C. gigas*; also somewhat in shaded positions. *C. gigas* is found in perfection on grand solitary trees; here they always place themselves in such posi-

tions on the trunks or heavier limbs that they may obtain the full benefit of the breezes, also the sunlight; yet some branch will afford them sufficient shade from the sun some time during the day, as to make their abode a perfect one.

I have seen this *Cattleya* climb up the mountains until actually stopped by the cold; the plants in such localities are as a rule stunted. Struggling as they do for an existence, the front part of the plant somehow will push out new leads repeatedly, while the bulbs behind lose their leaves and die off. Then again, they are found descending the warmer slopes, and in a few places join hands, so to speak, with *C. chrysotoxa*, and in such localities natural hybrids occasionally occur.

This particular region I found to be exceedingly interesting in orchids. The Andes, or the part of the same called the Cordillera Central, are here simply a maze of spurs and ridges in every direction, forming great cañons, valleys, and hollows, and precipices of every imaginable shape, and where every kind of climatic condition prevails, from the torrid to the cold paramos. The trails run along the mountain sides, in some places at appalling heights, in places so dangerous that the only safe means of locomotion is to dismount and walk. But to return to the orchids again; what a storehouse this is for the orchid lover. In the lower hollows may be seen large patches of *Peristeria elata* in perfection, with bulbs of enormous size, and flower stalks six to ten feet high; then again a few *Miltonia Roezli*; somewhat higher up is *C. chrysotoxa* modestly tucked away on a branch of a tree; and *Oncidium Kramerianum* nods here and there in more exposed places.—(JOHN E. LAGER, Summit, New Jersey, in "Transactions of Massachusetts Horticultural Society.") (To be continued.)

Cattleya Lueddemanniana alba "Empress."

One of the most handsome of white *Cattleyas* that we have seen at the Royal Horticultural Society's meetings in recent times was shown on March 3 by J. Bradshaw, Esq. (gardener, Mr. G. G. Whitelegg), The Grange, Southgate. We have been informed that the Orchid Committee voted it an award of merit, but this was declined by those who staged the plant, who regarded the award as inadequate. The plant was imported by Messrs. Hugh Low and Co. as a white form of *Cattleya Mossiae*, and was sold by them at a high figure to Mr. Bradshaw. The latter and his gardener regard it as truly a fine thing, with plenty of size and substance, pearly whiteness, and showing the darker veins delicately all over. It is also said to be much more free-flowering than the coloured *Lueddemanniana*. Our figure shows the flower somewhat reduced.

Phalænopses.

The "Butterfly orchids," as these are sometimes termed, will now be ready for repotting, or re-surfacing with fresh material, as the case may be. Some growers leave this operation till later in the season, but I have found that the new roots begin to grow in March, which indicates unmistakably that now is the time for attending to repotting. Supposing they are left till May, what is the result? The roots have made considerable headway, and cling to the stages, or anything within their reach, thus making it an impossibility to remove them without a great amount of injury.

If taken in hand at once this is partly obviated, and the roots take quickly to the new compost. Unless absolutely necessary, they ought not to be disturbed beyond carefully picking out the old soil, and replacing it with clean sphagnum; but should a specimen require potting (which must happen every three or four years) then a different method is adopted. First of all smash the receptacle, remove as much of the decayed compost as possible, and cut away all dead roots, when it will be ready for repotting. But it is not advisable to take away any pieces of crocks that may be attached to living roots, as they are placed in the pot or basket, and thereby can be of use as drainage, which must be ample. Healthy plants are usually potted intact, with practically no disturbance whatever.

A mixture of peat and sphagnum in equal parts is worked between the roots, and a layer of sphagnum moss on the surface completes the operation. Either teak wood cylinders, baskets, or ordinary flower pots may be selected, and if cultivated in the first-named they give little trouble, excepting an annual overhauling. For a few weeks after judicious handling of the water-can is essential, but dryness at the base must not be permitted, or the plants soon become distressed. Phalænopses are shade-loving subjects at all times, but more so immediately after root disturbance; or the leaves shrivel and eventually die.

A word of warning is perhaps required, especially by amateurs, regarding flower spikes. These must not be allowed to remain on the plant many days after the last bud has expanded, and it is even beneficial to disbud, or entirely remove the scape, if the constitution of the plant is not robust. Of late years there have been large importations of the pure white *P. Rimstadiana*, which will thrive at the warm end of the *Cattleya* house; but such as *P.'s* *Lueddemanniana*, *Esmeralda*,

Aphrodite, *Sanderiana*, *Schilleriana*, and *Stuartiana*, succeed best when given a moist, shady corner in the East Indian house, or warmest division, where the night temperature does not fall below 65deg F. Excepting on very dry, hot days, the syringe ought never to be used for spraying overhead; and then the greatest care must be exercised to prevent any water lodging in the axils of the leaves.—T. ANSTISS.

Notices of Books.

REPORT ON INJURIOUS INSECTS AND OTHER ANIMALS, observed in the Midland Counties during 1907, by Walter E. Collinge, M.Sc., F.L.S., F.E.S. Birmingham: Cornish Bros.; 2s. 6d.

This fifth report, published by Mr. W. E. Collinge, contains a mass of valuable information which cannot fail to be of great service to fruit growers, gardeners, and farmers in the Midlands. The author has for some years been closely identified with practical men; he has endeavoured to bridge the gulf which has so long existed between the researches of the laboratory and their practical application. Mr. Collinge has brought both enthusiasm and energy to bear upon the work; his activities have been displayed in many directions; he has been animated by a keen desire to benefit cultivators generally, and although his deductions may not always have been correct—for no one is infallible—his efforts have been thoroughly appreciated by cultivators in the Midlands.

Several pages of the report are devoted to the result of experiments with the lime and sulphur remedy for the Black Currant gall mite. On the whole, the reports received from various growers as to the efficacy of the remedy are highly satisfactory. Several growers state that they have completely eradicated the pest by the use of lime and sulphur. The letters which appeared in the *Journal of Horticulture* in November last, from "L. F. D." and Mr. J. Easter, are reproduced in Mr. Collinge's report. Where the original formula was used there have been many complaints about the lime burning the young growths. Mr. Easter, however, used air-slaked lime, and his bushes were quite uninjured, yet the substitution of air-slaked for ground unslaked lime, seems to have been quite effectual in clearing the bushes of mite. In the spring of 1907 Mr. Collinge tried further experiments to see if the quantity of lime used might be reduced without lessening the efficacy of the mixture. The following proportions were then used:—

"First dressing, one part ground unslaked lime and four parts sulphur; second dressing (a fortnight later) one part of lime, eight parts of sulphur; third and fourth dressings (at intervals of a fortnight) sulphur only. This has been, if anything, more successful than the old formula, and has the advantage of not burning the leaves or blossoms."

Growers please note, and dress your bushes at the end of March, middle of April, and beginning of May, and in a late season give a fourth dressing ten days or a fortnight later.

In the fourth report we were told of a winter spray-fluid, named Vi, which had given wonderfully good results wherever tried. Since that time this fluid has become widely known, and is spoken highly of by large numbers of fruit growers who have used it. Its great advantages are, it is perfect as a mechanical mixture, therefore easily and quickly mixed, does not clog the nozzles of the sprayers, and is generally admitted to be effectual in killing the eggs of muscel scale, and the Apple-sucker. Here is the author's description of the result of testing Vi fluid on the eggs of the latter pest.

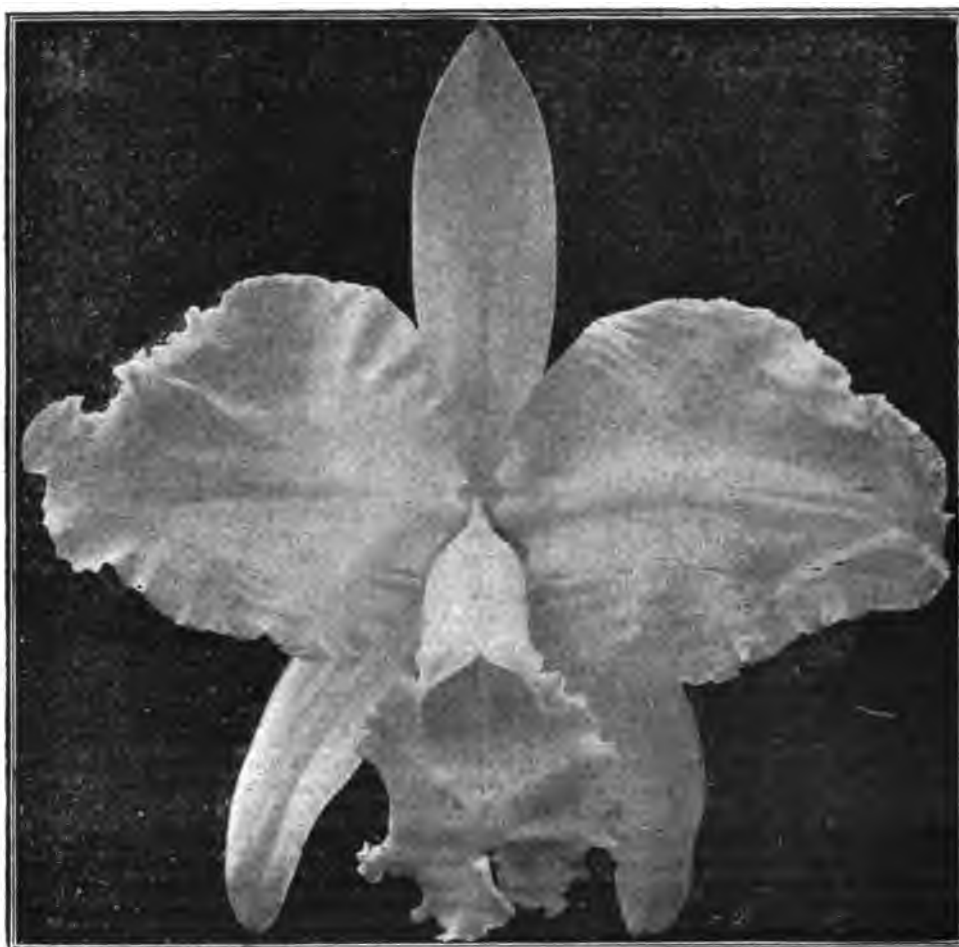
"A little of the Vi fluid was taken and mixed with 100 parts of water, then a few perfect eggs were placed on a glass slide under a low power of the microscope. After making sure that these were in no way damaged, they were wetted with the fluid by means of a fine camel hair brush. Within a few minutes the protoplasm was seen to contract, often spurting through the broad end of the egg. The egg-shell became wrinkled, and instead of a smooth, tense membrane, it lay as a crinkled sac, with a rough or broken surface."

This is clearly good news for the fruit grower and gardener, as the Apple-sucker has for some years been a most destructive pest. We cannot, however, quite understand why, in the experiments conducted by Mr. Collinge, the lime and salt mixture proved so unsatisfactory. In the laboratory the highest percentage of eggs of the Apple-sucker destroyed was 42 per cent., and of muscel scale 38 per cent. Professor Theobald, of Wye College, asserts that the lime, salt, and waterglass mixture is the most successful of all fluids used for the destruction of the Apple-sucker ova, and impartial witnesses have testified to the splendid results obtained after its use. There must be something wrong somewhere, when one thoroughly reliable authority declares a particular fluid to be strikingly effective, while another maintains it is useless. We are particularly interested in the point just at present, as our own trees have been sprayed with Vi fluid, and those of a friend and near neighbour with the

lime and salt mixture, and we shall carefully watch the results. The lime and salt mixture, when well made, certainly adheres firmly to the buds, spurs, and rough bark, just the position where the eggs are usually located. On the other hand, if V₁ proves effectual with us, we shall certainly give it the preference, because it can be much more quickly and easily mixed and applied.

As a summer spray-fluid V₁ is said to have given splendid results, and by mixing V₁ and V₂ fluids with potassium sulphide, Mr. Collinge asserts that he can cure the American Gooseberry mildew. This opinion does not seem to be shared by the authorities at the Board of Agriculture, but we hope that in the interests of growers means will be found of thoroughly testing the matter in an impartial manner.

Onion fly, it is recommended that the soil be given an application of "Apterite," although the report does not say whether or not it has proved to be effectual. We must, however, join issue with Mr. Collinge in regard to the following statement in the next paragraph: "The remedies which have been recommended from time to time are very numerous, but mostly ineffective." We have no hesitation in declaring that the recognised remedies for Onion maggot are perfectly effective if properly applied. We have had considerable experience in growing Onions in soils where it was said to be impossible to grow them satisfactorily on account of this pest, but we have never yet failed to gain complete mastery over the foe. We could also point to other cultivators who have been equally successful in districts where the pest is dreaded by those who will not take



Cattleya Lueddemanniana alba, "Empress."
(Actual size of flowers 6½ ins. by 6½ ins.)

The report under review also contains full and interesting details concerning the woolly aphis, and gives preventive and remedial measures, as well as reliable information concerning hosts of other pests.

The author has, during the last few years, been endeavouring to concoct a fumigant which will effectually rid the soil of eelworms and the hosts of other insect pests which spend a period of their life in the soil, and announces that in "Apterite" he has produced an effective remedy, which he claims to be a great advance upon any of the so-called insecticides previously in use. For this reason "Apterite" should certainly be tried by all, and it will be good news indeed if what has been said in regard to it proves true, viz., to quote from the report, "that by its application a revolution in agriculture will be brought about."

In connection with the destruction of the larvæ of the

the trouble to apply remedies, or only attempt to do so in a half-hearted way. We hope "Apterite" will prove capable of doing the work more easily, if not more effectually; but in the meantime let us not disparage old methods for the sake of elevating newer ones to an undeservedly high pinnacle.

In conclusion, let us state that we have derived great pleasure in perusing the report under notice. It is well arranged, and the illustrations, letterpress, and paper are of the highest excellence, the whole being well worth the price charged.

Mr. Collinge has now left the University of Birmingham to become the director of the Cooper Research Laboratory, Berkhamstead, where he will have splendid opportunities of continuing his work for the benefit of practical cultivators. He has left in the Midlands many friends and well-wishers who will look to him in the future for further assistance.

NOTES & NOTICES

County Technical Laboratories, Chelmsford.

The School of Horticulture, County Laboratories, Chelmsford, is just completing its year's work with an advanced four weeks' course, with the view to the students on April 8 taking the Royal Horticultural Society's examination. Mr. J. Fraser, F.L.S., will be the examiner.

New Edition of "Ornamental Trees and Shrubs."

Messrs. Smith, Elder and Co. will publish immediately a third and thoroughly revised edition of Mr. A. D. Webster's well-known work on "Hardy Ornamental Flowering Trees and Shrubs." Upwards of fourteen hundred species and varieties are now included, with the natural order to which each belongs, as also chapters on planting, pruning, soils, and general management.

Veitch Memorial Prizes.

The Veitch Memorial Trustees offer the following prizes for competition at the shows of the Royal Horticultural Society: On October 15 and 16 next, a first prize of £10 and a silver medal; a second prize of £5 and a bronze medal; a third prize of a bronze medal, for the best collection of five distinct varieties of Grapes, three bunches of each, to include two distinct white varieties, grown by the exhibitors only. On December 8 next, and at the first meeting in April, 1909, one medal and £5 on each occasion for the best group of winter and spring flowering Carnations, either in pots, or as cut flowers, or a combination of both, to occupy a space of 100 square feet, and grown by the exhibitors only. All these prizes are open to competition by amateurs only.

Enlargement of "Journal of the Board of Agriculture."

The fifteenth volume of the "Journal of the Board of Agriculture" begins with the issue for April, and arrangements have been made for the introduction of several new features. The size of the "Journal" will be increased from sixty-four pages to eighty pages each month, and this additional space will be filled, amongst other matter, with a monthly article on the course of trade in agricultural produce, and a comment on the tables of prices that are printed at the end of each number. An attempt will also be made to print from time to time reports on the condition of fruit crops abroad, especially on the Continent, and on the trade in those articles which compete with home-grown produce. In the April number two series of articles will be begun, the first on weeds, fungi, and agricultural pests, illustrated each month with a coloured plate, the other on the agriculture of small holdings, showing what methods have been adopted by those who have been successful, with suggestions for those who are about to take up new holdings. It is hoped that these articles will prove of service to all classes of agriculturists. No change will be made in the present price of the "Journal."

The Study of Plant Life.

Mr. D. R. Steuart, chief chemist with the Broxburn Oil Company, Limited, last week read a paper to the members of the Edinburgh Association of Science and Arts on "Plant Life and its Study." Mr. James Robertson presided. The lecturer thought that there was too much bookwork at school. The constant book study, combined with story reading, caused a tendency to day-dreaming, and something to counterbalance this was wanted to produce alertness of mind and attention to what passed before the eyes. He recommended the observation of plants; to begin early with the Nature teaching that many schools now had, and gradually to grow into scientific botany with the advanced classes. Some open-air work would tend to give health, and the variety would give resilience of mind to help on the book studies. It would add meaning to the references of literature and poetry, and be a ground work for training in art and matters of taste. He glanced over the whole field of botany, showing that through all Nature co-operation on the grandest scale was a fundamental law.

British Gardeners' Association.

At the last meeting of the executive council held on March 17, twenty-five new members were elected, bringing the total up to 1,188. The retiring members of the council will be decided at next meeting.—J. W.

"The Californian Fruit Grower."

We have received the annual review and harvest edition (1907) of "The Californian Fruit Grower," which is published as a weekly paper in San Francisco. This special number contains much statistical data about the Almond crop, also Apples, canned fruit, raisins, honey yield, Hop crop, Prune output, Walnuts, and wine. The issue is truly a remarkable one, both for its size and volume, and the immense amount of matter it contains.

"List of British Plants."

Mr. George Claridge Druce, M.A., F.L.S., has issued from Oxford University a "List of British Plants," containing the Spermatophytes, Pteridophytes, and Charades found either as natives or growing as wild plants in Britain, Ireland, and the Channel Islands. The task seems to us a dry one, as well as one demanding a very large amount of knowledge and care. The list of British plants is constituted as follows:—Native species, 1390; sub-species (numbered as species), 401; species, somewhat doubtfully native, 89; total, 1880. Besides these there are 1084 alien species. The price is 2s. 6d.

"Journal of the Kew Guild."

We are rather late in offering our congratulations to the contributors and editors of this annual publication. A memoir of Mr. R. Irwin Lynch is the first prominent feature, and we observe that the talented curator of the Cambridge Botanical Garden is a Cornishman, having been born at St. Germans in 1850. The main portion of this journal is, of course, devoted to the letters from old Kewites now in places abroad or at home. Two of these letters we have reprinted, as they show how Kew men are to a considerable extent pioneers in lands new to Britons. The obituary includes the names of W. B. French, Leo Farmer, W. A. Duncan, Alex. Aikman, L. Kropatsch, W. Nation, and W. Parnell. To ex-Kewites the "Journal" is most welcome, particularly for its list of addresses of past-time companions.

"The Culture of Vegetables and Flowers."

A far better recommendation than any that we can give to this book, is the fact that it is now in its thirteenth edition, and indeed a new edition has been appearing, it seems, annually for several successive years. The book is one that young gardeners would do well to purchase, for it contains a vast amount of reliable cultural information about flowers and vegetables that can be raised either from seeds or bulbs. Nor can the monthly hints be other than highly useful, to beginners especially. We have also always regarded the chapters on the chemistry of the garden, and on plant and insect pests, as highly useful. The chapter on lawns and tennis courts from seed adds further value to this excellent and well-illustrated, well-printed book. The authors are Messrs. Sutton and Sons, Reading, and the price is 5s. net.

Specialisation in the Nursery Business.

A leading nurseryman recently made the statement that the nursery business is getting so vast that it will have to be specialised. From which we infer that this gentleman is of the opinion that it will be more profitable for newcomers in the business, particularly, to devote their attention to certain specialties in the nursery line, rather than attempt to grow a general stock. The business will eventually divide up, just as has that of the florist, growers devoting their attention to those plants to which their soil and location are well adapted, or from the cultivation of which they believe they see the best financial results obtainable. There can be no doubt whatever that the nursery trade is growing fast, and those who can take advantage of the advice to establish a small acreage devoted to this branch will not fail to receive material benefits therefrom: to thousands of florists, such an addition to their greenhouse range will prove of substantial and increasing value as the years go on. In addition there are good openings for those who will establish plantations for the many specialties most in demand, as well as for the raising of newer or less common trees and shrubs.—("Florists' Exchange.")

The German Dahlia Society.

This society has celebrated its tenth anniversary by issuing a brochure containing a record of the principal events during that period of its history. The membership in 1897 was 80, and is now 131. Shows have been held each year, and only once was there a deficit. Photographs of Dahlia plants and flowers illustrate the pages. The headquarters of the society are at Leipzig.

The Weather at Wroxham, Norfolk.

There is no tendency yet (March 23) towards a welcome change. It is not so wet as it has been, but the extreme cold winds from the east, together with occasional hail showers, do not lend much encouragement to vegetation. Nevertheless, we think this will have a good effect in keeping back fruit blossoms. Frost, varying from 1deg to 8deg, was nightly experienced during the past week.—D. C.

The Mildew Orders.

Regulations framed in order to protect plant life are just as important as rules imposed by local authorities for the prevention of the spread of disease in animals. The proceedings against an Evesham grower for non-compliance with the regulations of the Worcestershire County Council with regard to Gooseberry mildew are of special interest to fruit growers. The "Birmingham Daily Mail" reports that in the Evesham district alone something like 33,000 Gooseberry trees have been destroyed.

Melbourne (Derbyshire) Fruit Growers.

A meeting of the fruit growers of Melbourne (Derbyshire) and district was held on March 6, when a resolution was passed calling on the Board of Agriculture to grant compensation for bushes destroyed under the American Gooseberry Mildew Order. An association was afterwards formed, to be called "The Melbourne and District Fruit Growers' Association." Mr. W. H. Perry, Alma View, South Street, Melbourne, Derbyshire, was appointed secretary, to whom all communications should be addressed.

Dutch Bulb Growers' Society of Haarlem (Holland)

Since January, fortnightly meetings have been organised by this society, where new and interesting bulbous plants may be shown for certificates and awards. The following awards have been given, viz.:—First class certificate for single early Tulip, Brilliant Star, orange-scarlet with black base; for Tulipa Fosteriana, a species with enormous scarlet flowers with yellow or black base, and for Hippeastrum procerum, a scarce, mauve coloured species. Awards of merit for single early Tulip, La Reine des Reines, lovely pink; and for single early Tulip Hermann Schlegel, or Primrose Queen, a sport from the well-known La Reine, flower light sulphur, shaded white. Gold medal for a group of new seedlings of Freesia Tubergeni. Silver medals for groups of forced single and double Tulips and Darwin Tulips.

Bulbs in London Parks.

The London County Council has spent close upon £500 in providing bulbs for the enclosures under its jurisdiction. For this sum no fewer than 345,550 bulbs have been supplied, and according to the "Pall Mall Gazette" they comprise the following varieties:—Hyacinths, 18,100; Tulips, 103,550; Crocuses, 71,000; Lilies, 3,025; various, 149,875. Twenty-eight parks and open spaces have seen the busy labours of nearly 300 of the Council's gardeners for many weeks past. The bulbs are by no means evenly distributed among the parks. The latter, of course, vary considerably in size, and consequently in their requirements, but even then it is interesting to note the variation in the distribution. The Victoria Embankment and Leicester Square gardens, for instance, have taken 4,000 Hyacinths, 6,000 Tulips, 3,000 Crocuses, 100 Lilies, 1,000 Snowdrops, and 9,000 Narcissi, while Chelsea Embankment gardens have been allotted 600 Hyacinths, 2,300 Tulips, 2,000 Crocuses, 125 Lilies, no Snowdrops, 1,400 Narcissi, 1,000 Daffodils, and 100 Gladioli. Battersea Park has received 2,000 Hyacinths, 11,000 Tulips, 8,000 Crocuses, 575 Lilies, 5,500 Narcissi, 600 Gladioli, 250 Anemones, 1,000 Scilla siberica, 500 Scilla campanulata, 1,000 Chionodoxa Lucila, 1,000 common Bluebells, and many other varied bulbs. This park is one of the largest in London, and has taken altogether 44,000 bulbs, a much greater proportion than any other.

Hardy Plant Notes.

Onopordon Acanthium.

One of the most handsome of our British plants is the Cotton Thistle, sometimes also called the Scotch Thistle—*Onopordon Acanthium*. A very small figure of it is here reproduced, and the photograph was taken as late as the first week in November last year. At that time there were not very many border plants in a presentable state of beauty. This big, branching, spinous herbaceous plant, with its silvery downy skin and branches terminated with purple flowers, is fit for the back part of a wide herbaceous plant border, or for the wild garden, where perhaps it may be regarded as most at home. It reaches to 7ft in height in good soil, but thrives almost anywhere. Of course, a light position, or at least where not heavily shaded,



Onopordon Acanthium (the Cotton Thistle).

suits it best. This plant is of biennial duration, and seeds sown now in the open ground will yield plants for flowering next year.

Helleborus orientalis.

Few plants can be more welcome in the flower or shrubby borders than the Lenten Roses at the present time. As I write quite a show may be seen at the nurseries of Messrs. Barr and Sons, Long Ditton, and the plants have been in flower since the end of January. These beautiful border plants cannot be over estimated, their bushy branching habit, freedom of flowering, and hardy character rendering them invaluable subjects for the margins of shrubberies, or for interplanting with hardy ferns. Any good garden soil, enriched with manure, suits them, but to do them well, and to avoid frequent lifting and replanting, it is well to deeply trench the ground and plant in a stiff loam and coarse sand, giving an annual top-dressing of well-decayed manure, and an occasional supply of liquid manure.

The new race now being worked up by the Messrs. Barr is a great improvement, and will quite replace the varieties that were exhibited a dozen years ago. The flowers are larger and more varied. A few special varieties are *Helleborus orientalis* Peter Barr, with large, umbellate, rich deep purple flowers, tall and free; probably a seedling from *H. colchicus*. *H. o. Coombe Fishacre*, var. *White-cap*, very handsome, pure

Pompon Dahlias.

I append a list of varieties arranged according to their average records at the last four exhibitions of the society, in all cases where this is practicable. Those kinds which at the time of the last show of the National Dahlia Society were three or fewer years old are indicated by an asterisk:—1, Bacchus; 1, Nerissa; 3, Tommy Keith; 4, Darkest of All; 5, Douglas; Emily Hopper; 7, Adelaide; 8, Jessica; 9, Daisy; 10, Gany-mede; 10, Nellie Broomhead; 12, Little Bugler; 12, Rosebud; 14, Ideal*; 14, Queen of Whites*; 16, Dr. Jim; 16, Violet; 18, San Toy*; 19, Little Mary*; 20, Cyril; 20, Ernest Harper; 22, Edith Bryant; 22, Midget*; 22, Phoebe; 22, Sunny Day-break. The changes also in this section are mostly very slight.

Single Dahlias.

Arranged according to their average records for the last three exhibitions, the leading varieties come out as follows:—1, Leslie Seale; 2, Mikado*; 3, Stromboli*; 4, Mavourneen*; 5, Royal Sovereign; 6, Eclipse*; 6, Liberty*; 8, Princess of Wales; 8, William Parrot; 10, Victoria; 11, Beauty's Eye; 11, Darkness; 11, Formosa; 11, General Kuroki*; 11, Miss Roberts; 11, Snowdrop; 11, Veronique*; 18, Polly Eccles. The varieties marked with an asterisk are new sorts—those sent out in 1905 or subsequently. The changes in the singles, for many years almost as conservative a race as the shows and fancies, show considerable vitality, and are therefore to be welcomed. Care must, however, be taken that in the desire for novelty some of the best of the older varieties are not displaced by kinds which do not comply as completely with the characteristics given as a guide for the raisers, viz., "Flower perfectly circular, consisting of a single ring of eight florets surrounding the central yellow disc, the florets broad and flat, overlapping each other, rounded and slightly recurving at the tips."—(EDWARD MAWLEY, V.M.H., president of the National Dahlia Society, in that society's annual report.)

Stove and Greenhouse Plants.***Aphelandra squarrosa* Leopoldi.**

A distinctly effective stove foliage plant is this. Added to the prettily marked foliage are the terminal four-sided spikes of brilliant orange bracteate flowers. The plants bloom from September onward until the end of November—the longer according to the temperature and treatment. In a warm but dryish atmosphere they last best. Several of them are almost like herbaceous plants when propagated annually from cuttings. The plant in the illustration was such a one, the pot being apparent even in this small photograph. Or seeds may be sown now, to produce flowering plants for the autumn. They are exceedingly attractive, and well deserve a trial by anyone who may not have hitherto cultivated them. *Aphelandra squarrosa* Leopoldi has leaden-green leaves, 6in to 8in long, with white veins. A plant in a 5in or 6in pot may stand a foot and a half high. The species are really evergreen shrubs, natives of tropical America. *A. cristata* and *aurantiaca* are each very handsome.

***Stephanotis floribunda*.**

In reply to "J. H. O.," the large plant you purchased last year, which made long growths, but did not flower, will probably afford some bloom this season. This depends upon the maturity of the previous summer's growth, its usual time of flowering being May. The growths should be trained to a trellis beneath the roof, and be exposed fully to the sun; the nearer the growth to the glass the better, provided they do not touch it. This secures the thorough maturation of the wood, the growths being stout and short jointed. Train these 6in apart, and the flowering in due season is assured, other conditions being favourable. It succeeds in a temperature of 60deg to 65deg in winter, or on cold nights 55deg may be allowed, with a rise of 10deg to 15deg or more from sun heat. The summer temperature will be 65deg to 70deg at night, 70deg to 75deg by day from artificial heat, and 85deg or 90deg from sun heat, the house being ventilated at 75deg.

During the summer the plant requires liberal supplies of water, but care should be taken not to make the soil sodden and sour by needless applications, but when the growth is completed the soil should only be kept so moist as to prevent the leaves from becoming limp. It succeeds best in turfy loam, affording good drainage. Potting is best done after flowering, or say in June. The plant, however, does not require a large amount of root room, a 15in pot sufficing for a large plant.

Pruning is confined to cutting out the old worn-out wood, shortening to succession shoots from the base upwards, so as to have the whole length of the trellis covered with the flowering growths, always allowing sufficient space for development at the upper part of the trellis. Established plants do best when placed in a bed of prepared soil, about 3ft square, and the growth trained to a trellis beneath the roof, the plant then covering a large area, often a whole roof of a house, and giving an astounding wealth of bloom for cutting. Shade is not necessary, and should be avoided, light being all important for floriferousness.—P.

Kew Notes.**The Alpine House at Kew.**

There are many charming plants in flower in this house at the present time. The chief object of the house is to afford visitors an opportunity of examining the many beautiful alpine plants and bulbs which naturally flower early, but which for several reasons do not oftentimes attain to perfection outside. No

***Aphelandra squarrosa* Leopoldi.**

artificial heat is provided, the plants are grown in cold frames, the pots or pans being plunged to the rim in ashes. Many of the plants and bulbs are grown in pans (dwarf pots), those 6in in diameter being a favourite size. Most of them do not require depth of soil. The pans provide a maximum amount of surface space, and at the same time do not appear unwieldy to the plants as would ordinary pots of the same diameter.

The following species and varieties were in flower on March 19:—*Shortia galacifolia*, *S. uniflora*, and var. *grandiflora*; *Bulbocodium vernum*; *Galanthus Elwesii*, *G. Ikarie*, *G. latifolium*, *G. plicatus*; *Crocus Balanse*, *C. biflorus* var. *Weldenii*, *C. dalmaticus*, *C. Imperati*, *C. reticulatus* var. *micranthus*, *C. Sieberi*, *C. vernus* var. *concinus*, *C. vitellinus*; *Primula marginata* and var. *densiflora*; *Saxifraga apiculata*, *S. Boydii*, *S. Burseriana*, and vars. *grandiflora*, *macrantha*, *major*, *S. Elizabethae*, *S. Frederici-Augusti*, *S. Ferdinandi-Coburgi*, *S. Griesbachii*, *S. oppositifolia*, and vars. *amphibia*, *alba*, *grandiflora*, *minor*, *S. Salomoni*, *S. sancta*, *S. scardica*; *Tulipa biflora* var. *Turkestanica*, *T. Kaufmanniana*, *T. pulchella*, *T. saxatilis*; *Draba grandiflora*, *D. rigida*; *Cyclamen Coum* and var. *alba*, *C. ibericum*; *Heloniopsis japonica*; *Fritillaria aurea*, *F. pudica*, *F. Sewerzowi*; *Anemone blanda*, and var. *atrocaerulea*, *A. intermedia*, *A. Hepatica* in various colours; *Narcissus Bulbocodium* var. *citrinus*, *N. cyclamineus*, *N. moschatius*, *N. minor*, and var. *minimus*, *N. triandrus* var. *albus*; *Erythronium citrinum*, *E. Hartwegii*; *Corydalis bulbosa* var. *brachyloba*, *C. chielanthifolia*, *C. Ledebouriana*, *C. Kolpakowskyana*; *Iris reticulata*; *Arabis alpina*, *A. purpurea*, *Hyacinthus azureus*, and var. *amphibolus*; *Ornithogalum Hawsknechti*; *Ionopsidium acaule*; *Aethionema iberideum*; *Nocca stylosa*; *Alyssum Bornmuelleri*; *A. podolicum*; *Scilla sibirica* vars. *alba* and *pallida*; *Adonis amurensis*; *Gagea lutea*; *Chionodoxa Lucilii* var. *sardensis*; *Romulea Bulbocodium* var. *nivalis*; *Sternbergia Fischeriana*; *Colchicum crociflorum*, and *Haquetia Epipactis*.—D. F.



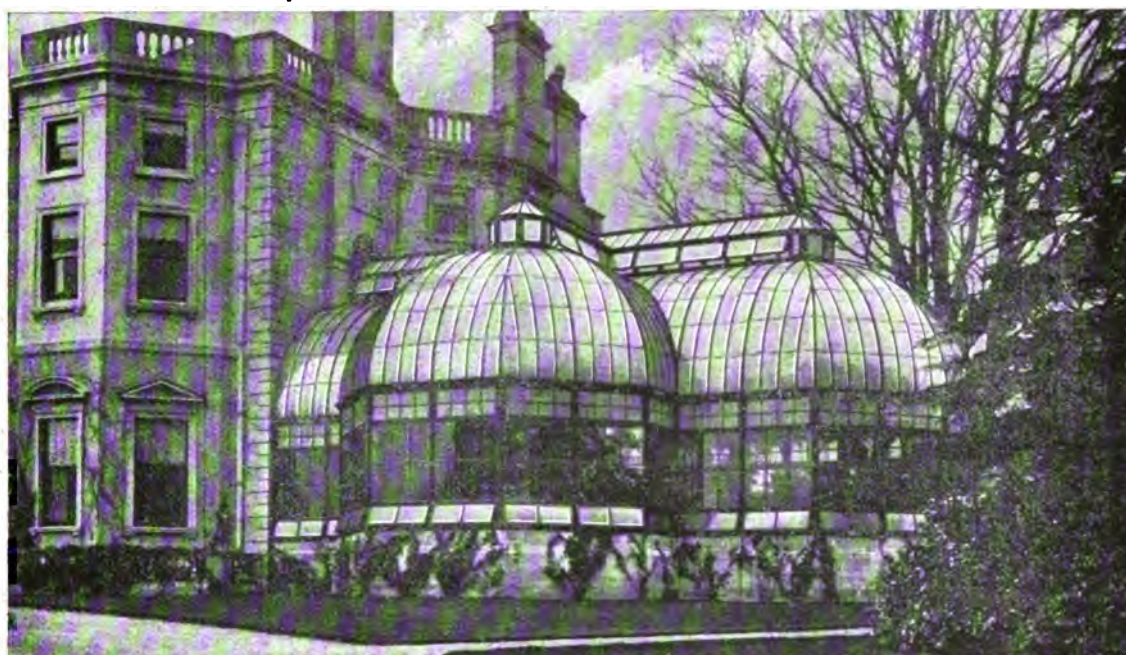
Mulching Roses.

Immediately after pruning, previous to the beds being tidied up, is the time we prefer for mulching. When the manure is put on in autumn it may serve as a slight protection against frosts; but, on the other hand, we have the fact that much of the plant food is washed away by heavy rains during the winter. At the present time the roots are becoming more active, and a stimulant will be of great assistance. Farmyard manure is the kind generally used.

When it is possible to discriminate a little between the animal manures used, horse manure will be found the most serviceable for heavy ground, and cow manure or pig manure for light soils. Always use the manure thoroughly decayed. To give the beds or borders a neat and finished appearance, a thin layer of the surface soil may be raked off, care being taken not

A Handsome Conservatory.

The season when the alterations to warm plant-houses is usually undertaken draws on apace, and already the specification makers may be at work. In the summer, too, when the occupiers of inland villa residences are absent at the seaside, such attached conservatories as the one here shown are very frequently in course of erection. It is to draw attention to the merits of such a structure that these notes appear; and we have to acknowledge our indebtedness to Messrs. Mackenzie and Moncur, Ltd., horticultural builders, Edinburgh, for having furnished the two excellent illustrations. The conservatory at Farmleigh, Dublin, was built by them. It is difficult to give concise particulars as to the dimensions of house, as it is of an irregular shape. It is, however, constructed of teak wood on steel girders. The floor is formed of black and white marble slabs. There is no staging in the ordinary sense, but there is a border around the house behind a marble kerb, where plants can be arranged on the floor level. The heating of the house is completely out of sight, being arranged beneath the border for the plants. The house is used principally as a lounge or winter garden, and has, we can well believe, an exceedingly



Conservatory at Farmleigh, Co. Dublin.

to damage the roots; spread the manure over the ground, and cover with the soil raked off. A sprinkling of wood ashes, particularly on heavy soils, will be beneficial. Newly-planted Roses should not be manured at the present time. Later on, if the summer is unusually dry, it may be desirable to mulch them, otherwise, provided the soil was well prepared previous to planting, they will need none this year.—O. K.

Mme. Abel Chatenay Rose.

Introduced by Pernet-Ducher in 1895, this is now well known as a market variety, with a perfume second to none. The flowers are a bright carmine, shaded to deep salmon, long-pointed, full-sized buds, produced abundantly. A very continuous bloomer. A large market grower complains, however, that the foliage is first to have mildew, under the same treatment as his other numerous market varieties. It is the only Rose affected on the place under glass. The foliage is faulty nearest the bloom, consequently this is picked off, leaving the stem naked nearest the flower, and spoiling the market value. The early house from which the Roses are being cut is very generally affected. Every care is taken to guard against the affliction, but to no effect. The scorched appearance shows itself first in sunshine after a dull time. My own supposition is that the disfigurement is really caused by the sun catching the soft points while wet.—S. C.

handsome effect. Winter gardens for the public are yearly becoming more common in the larger cities, and few finer features can be imagined. In this respect, Edinburgh, the cold northern capital, is singularly behind the times; but we are not without hope that some day the omission will be rectified.

Alpine Plants and Shrubs.

(Continued from page 272.)

Erica (Heath). Though Heathers grow naturally in sandy peat, there are few loams in which they will not succeed, always provided they are rich in vegetable matter and free from chalk or lime. There is no question, however, of their not succeeding in peat and sand, or grit. There are many beautiful species and varieties highly ornamental for rockwork. There is the Tree Erica, *E. arborea*, growing 2ft to 3ft high, a fine plant for hot, sunny positions. The beautiful *E. carnea*, with its white variety, *E. c. alba*, afford a fine contrast for early blooming. *E. ciliaris* produces its pale red flowers in terminal racemes from June to July. *E. cinerea*, rising about 1ft from the ground, produces its reddish-purple flowers, changing to blue, in June onwards; its varieties *alba major*, white; *coccinea*, red; and *atrosanguinea*, deep reddish-purple, being notable for

their beauty. *E. Mawiana* bears purplish-crimson flowers in clusters after the style of *E. ciliaris* and *E. tetralix*, and from August to October. *E. tetralix* attains a height of 1ft to 2ft, producing its flowers in terminal racemes of a delicate pink colour, generally in July and August, its variety *E. t. alba* being finely contrasting. *E. vagans* grows from 6in to 12in high, forming neat bushes; flowers purplish-red produced along the branches in great profusion in August and September. *Calluna vulgaris*, the common Heather or Ling of our moors, is so beautiful that, especially in its varieties, it should never be omitted, particularly the dwarf varieties, such as *C. v. hypnoides*, *C. v. Foxi*, forming dense pincushion-like tufts of dark green; and the tiny *C. v. pygmæa*. There are several others that are most excellent.

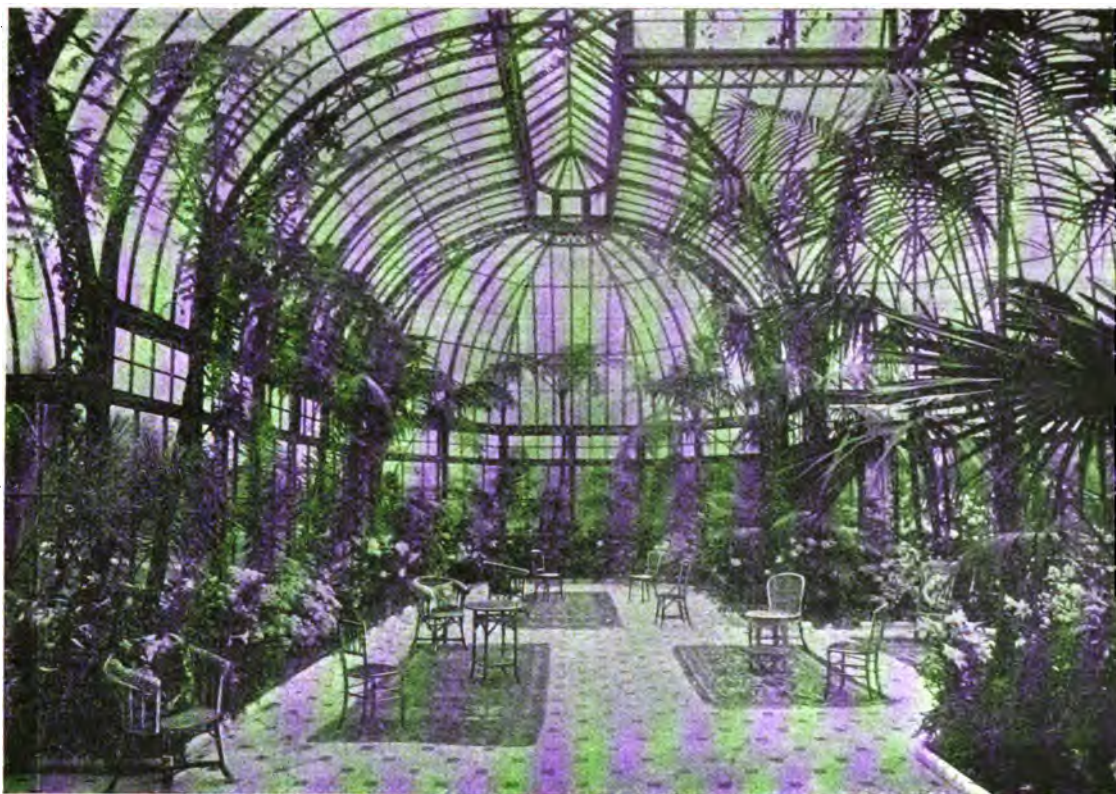
Euphorbia Myrsinites has fleshy stems of prostrate habit, with roundish, glaucous leaves. *E. pilosa* has pretty leaves in autumn. These should be given dry positions on rockwork, and though included here, can hardly be regarded as shrubs.

Gaultheria nummularifolia, a pleasing evergreen, forming a mass of creeping stems, spreads rapidly in peaty soil; flowers

young plants introduced in their place. Where not to be had in nurseries, they are easily raised from seed sown in the open air, therefore no difficulty arises in keeping up a supply of thrifty plants.

Helianthemum (Sun Rose) embraces several species (about 150), all of which are of easy culture in a sandy loamy soil, and given well-drained situations on sunny aspects of slopes and rockwork ledges they afford masses of beauty. They are of dwarf, compact growth, and their flowers are borne in great profusion and in a remarkable diversity of colour.

H. vulgare (Rock Rose) in numerous varieties, represents almost everything illustrative of the variation of the dwarf shrubby species of Sun Rose. They grow about 12in high, and flower from May to September. *H. Fumana*, an elegant sub-shrub of Heath-like habit, with bright yellow flowers in June, hails from south-western Europe. *H. lævipes*, also has linear needle-like leaves and yellow flowers, and is from south-western Europe, both of which require shelter during severe weather. *H. polifolium*, a native species, with procumbent branches, and white flowers marked yellow at the base, has a beautiful variety,



Interior of the Farmleigh Conservatory.

bell-shaped and hidden under the arching stems. *G. procumbens* produces drooping white flowers, and its berries are charming through the autumn and winter. It is a native of North America, in sandy places and cool damp woods, and succeeds in moist peat or even in that of a loamy nature. *G. serpyllifolia* has prostrate wiry stems, with roundish, leathery, deep green leaves, and white flowers. It succeeds in heath soil, and is very desirable for rockwork.

Genista alba, lovely white flowers, borne on slender pendant branches, charms all beholders in early summer; and not less beautiful is *G. præcox*, a graceful shrub, with slender, pendant branches laden with pale yellow flowers. *G. Andreana* is very free flowering and vigorous, also beautiful by its profusion of bright yellow and crimson flowers. *G. prostrata*, as its name implies, is procumbent, yet may reach a height of 12in. *G. sagittalis* attains a height of about 1ft; while *G. tinctoria plena* does not rise above 6in, nor does *G. pilosa*, these blossoming in June and July. The *Genistas* or Rock Brooms are very suitable for sandy loams and dry banks, especially *G. sagittalis*, and the dwarfier species have singular fitness for rockwork. The taller ones are liable to become straggling when advanced in years, therefore they should be removed when unsightly, and

roseum, with rosy red flowers. The tall growing *H. atriplicifolium*, with large yellow flowers and branches white from tomentum, is from Spain. *H. halimifolium*, yellow, slightly spotted at the base of each petal, also from Spain; and *H. formosum*, yellow, marked with a black spot at the base of each petal, a native of Portugal, all require warm situations on rockwork, they growing 3ft or 4ft high.

Hypericum (St. John's Wort) includes among its 160 species *H. Egyptiacum*, an evergreen, requiring a warm sheltered situation; also *H. balearicum*, evergreen, leaves spotted with white, flowers yellow and large, but few; likewise requires a warm position; *H. boris*, evergreen, needs shelter, being a native of the Levant, the flowers being borne in loose panicles, bright yellow, and about 1in across. Similar remarks, as to position, applies to *H. empetrifolium*, it being from South Europe, and evergreen. All these require loam and sand, well drained.

H. calycinum, the Rose of Sharon, one of the most valuable shrubs as undergrowth, it thriving in the shade under trees, and only growing about 1ft high, producing bright yellow flowers 3in or 4in across from July to September, and being sub-evergreen, is the most popular of the genus.

H. uralum, a native of Nepaul, is hardy, and of semi-drooping habit, hence good among the boulders of rockwork or on banks. *H. reptans* forms little evergreen tufts of round pale green leaves, and produces large bright yellow flowers. *H. Hookerianum* syn. *oblongifolium*, however, a native of Nepaul, and its near relative, *H. nepalense*, both low shrubs, with large yellow flowers, require warm situations. All have yellow flowers.

Linnaea borealis, a lovely little creeping evergreen plant, allied to the Honeysuckle, bearing two flowers on each upright stalk, hence the name Twin Flower, white or rosy, bell-shaped, and very fragrant, drooping in a charming way. It thrives only in pure air and on northern slopes of rockwork, and the soil moist peaty loam. It is usually found in moist woods, sometimes forming a dense carpet. Young healthy plants should be planted in a moist, shaded slope, on a slightly raised bank, and when established it forms a charming carpet to a group of the small alpine shrubs on northern slopes.

Lithospermum prostratum, a little evergreen spreading sub-shrub, producing lovely blue flowers with faint reddish violet stripes in great profusion, should be planted so as to let its prostrate stems fall down the sunny face of the rock, planting in sandy loam and grit. On dry and sandy slopes it forms a round spreading mass, 1ft or more high, but is seen to best advantage as an overhanging plant. *L. petræum*, a much-branched evergreen, with greyish leaves, produces terminal clusters of drooping violet-blue flowers in the month of June and July, and is very ornamental. It is a native of dry rocky places in Dalmatia and Southern Europe, and planted on rockwork about level with the eye on a deep rich loam, well drained and in the full sun, thrives well, and is very effective.

Logicera pyrenaica, an alpine Honeysuckle, forming dense dwarf twiggy bushes 9in to 18in high, and producing white or creamy white flowers in clusters, succeeds in rich loam in well drained but moist narrow fissures of rockwork.

Leptospermum scoparium may be described as a Broom-like Hawthorn, evergreen much-branched shrub, leaves small, shining, bright green. Flowers snow-white with dark centres, produced in summer, resembling the common Hawthorn, and similarly scented. It is a native of New Zealand, and grows 4ft or more high, thriving in loamy soil on sunny banks.

Margyricarpus setosus, a pretty little evergreen, that should be so planted that its branches can rest on a dark coloured stone, so that its white berries may be shown up to the greatest advantage, as these form the main feature of attraction, the flowers being green, small, axillary, and sessile. It is a native of the Andes, thriving in a rich, light soil (sand, loam, and leaf mould.)

Menziesia empetrifolia, a tiny Heath-like shrub, seldom more than 6in high, is a choice subject for the rockery, producing its umbels of large rosy-purple bells in May and June. *M. polifolia* (Irish or St. Dabeoch's Heath) is erect growing, 12in to 18in high, bearing its graceful one-sided drooping racemes of crimson-purple flowers from June onwards. *M. p. bicolor* produces pink, white, and striped flowers upon the same plant, and is very interesting. *M. p. globosa* bears large, pure white bells. The *Menziesias* succeed in moist sandy peat in sunny fissures of rockwork, and are singularly fine massed on slopes in a moist peaty soil.

Mühlenbeckia complexa, a pretty shrub, enjoys a sunny position on the upper and drier parts of the rockery, where it forms a dense prostrate bush, and though the inflorescence is green or whitish, the graceful shape of the spray-like branches render them valuable for cutting purposes. *M. varians* also is fine for dry sunny positions on rockwork or rockeries, and is distinct and lesser growing, the leaves being fiddle-shaped. They succeed in loamy soil, well drained, in sunny aspects.

Ononis rotundifolia is a very handsome sub-shrub, much-branched, with rosy-pink flowers produced from June to September. It thrives in ordinary garden loam, preferably gravelly, and very suitable for growing on banks and rockwork in sunny positions.

Opuntia (Indian Fig, Prickly Pear) species are generally too tender for growing in the open air, *O. vulgaris*, *O. humilis*, and *O. Rafinesquiniana*, being the hardiest, the latter having bright yellow flowers in June and July. The *Opuntias* have fleshy branches, and should be given positions where they are not likely to be damaged by brushing against passing objects. They should be given sunny positions, and a soil of loam and stones. The species named are prostrate growing, *O. arborea*, a North American species, being erect-branched.

Polygala chamaebuxis, a little creeping evergreen shrub, spreads out into compact tufts on slopes in peaty loam, and produces its pale lemon and bright yellow flowers in spring (April to June), deliciously fragrant. *P. c. purpurea* is a finer plant with magenta-purple blossoms, very beautiful. It seems to do best in positions shaded from the midday sun, and thrives on rockwork, being there more compact than in borders.—G. ABBEY.

(To be continued.)



Violet Kaiser Wilhelm.

We are sending by same post a bunch of Violet Kaiser Wilhelm for your inspection. We read with interest the account of the new American Violet, Boston; and the writer compared it with Princess of Wales, saying it had better substance and with stiffer stem. Now, these are just the characteristics of Kaiser Wilhelm, and because of its great superiority to Princess of Wales we discontinued growing the latter several years ago. We think you will agree with us that the flowers sent are large enough, most of them being 1½in across, and if we had measured them in January we could have found some 1½in in diameter, as the flowers were much larger then. We think this variety is not nearly so much grown as it should be.—BLACKMORE AND LANGDON, Bath.

[The flowers are large, of good substance, and with long stalks. The colour is also a deep violet. From all accounts, however, the variety Boston is an excellent sort.—Ed.]

The Gooseberry Mildew in Norfolk.

It appears that this dreaded pest is gaining a strong footing in this county. From expert statements made at Terrington Petty Sessions on Monday last, in connection with the prosecution of a grower who neglected to take due measures to extirpate diseased bushes, the disease is fairly prevalent. In Emneth, where the case occurred, out of 103 gardens, 65 are infected, and it was asserted that any garden within a radius of fifty miles would be in danger of being infected. The disease, too, evidently spreads rapidly, and it was stated that there was more of the disease in the county than in the rest of England. The defaulter was fined £6, and strongly censured for failing to take timely action. This is the second case for the same offence in the county. In consideration of this sharp look-out on the part of the Local Government Board and the County Council, it is important for growers to be on the alert for the appearance of the disease. Pruning the infected parts in the winter was said to be an effective procedure in staying the spread of the disease.—D. C.

Sweet Pea Jottings.

I put out some of my Sweet Peas a week ago, but I am afraid they have not enjoyed it much. They were well hardened off, so won't take much harm. I think the worst danger in growing hardy things in pots indoors is that one is so apt to plant out without properly hardening off. Those I put out were crosses of 1908 and 1907, seedlings to grow for seed. I think the strongest and best grower amongst them is a white Spencer (seedling); it is very vigorous indeed. The late Mr. Cook had several of my seedlings, as I thought if he grew some he could compare them and show, too, if necessary. I see in the "Sweet Pea Annual" that Burpee and another have a "King Edward" Spencer. So have I, and a fine flower it is; the largest I have ever grown. I hope it comes true; I could only save half a dozen seeds, but that's the worst of these Spencers, they set so badly.

FRUIT SPRAYING.

We are very busy spraying, and have been glad of these few fine quiet days. Another day's work will finish the job; then comes the Black Currant mite; so it goes on; as soon as one thing is over, another awaits. Do you enjoy this experience?—L. F. D.

Tariff Reform.

The leading article under this heading on page 251 provides much food for serious reflection, and it might perhaps be of service if wider discussion of the issues involved was permitted. The whole subject is worth serious attention, quite apart from any aspect of party politics. One and all, we have reason to believe, to whatever party they belong, are anxious to solve the problems of rural depopulation and urban overcrowding. If by market gardening, fruit growing, and similar avocations, the number of producers are to be increased (and consequently the amount of produce marketed), there seems some reason for thinking there must be some check placed upon foreign importations. Many branches of market gardening and fruit growing suffer from importations, and some small tax might well be given a trial upon some of these introductions. Take, for instance, Asparagus. For a week or so our home

growers may make capital prices, but as soon as the time comes when they might be expecting a fair return, the Frenchmen flood our markets, and bring the price down to a very poor figure; and it is only by pulling the price still lower, and so making the returns unremunerative to the foreigner, that the importations are stopped. Most, if not all, of our small fruits are subject to the same competition. Those desirous of encouraging land cultivation might well turn their efforts in the direction of slight protective duties. It is impossible to forecast the effect such duties might possibly have upon the allied interests of fruit growing and vegetable raising for market. It certainly seems to us the time has come when something practical should be attempted, if only for a year or two, in the form of an experiment.—GROWER.

The late Mr. Quintin Read.

I was sorry to see in your contemporary a notice of the death of Mr. Quintin Read, whom I have known for many years, and for whom I had a great respect. [See also our Spring Number, March 19, p. 254.—Ed.] Mr. Read was apprenticed to gardening sixty years ago last February, in the gardens of John Strutt, Esq., Bridge Hill, Belper. He remained there for seven years; afterwards holding situations in Kent and elsewhere. About forty years ago he was introduced to my father, at Chilwell, who recommended him to the late W. Hollins, Esq., of Pleasley Vale, where he remained fourteen years, leaving to go to Sir F. T. Mappin, at Thornbury, Sheffield. After six years at Thornbury he spent another six years with the late J. A. Craven, Esq., near Daventry; then removed into Worcestershire, where he held an appointment as assistant demonstrator to the Worcestershire County Council, which post he held for six years, when, through failing eyesight, he was compelled to relinquish his public work. He removed to a quiet place in the country, where he spent the remainder of his days. His love of gardening was, of course, strong to the end; no true gardener ever loses it, no matter how much other tastes may change, and his thatched cottage, embowered with Roses and climbing plants, and his pretty garden, bore eloquent testimony of his care of his plants.

Mr. Read will no doubt be known to many of your readers through his writings in your columns and elsewhere. His first article in the *Journal* was penned in 1863; and he also wrote for the "Notts Guardian" and the "Sheffield Independent" for a good many years, and was somewhat proud of his connection with the "Derby Reporter," for which paper he wrote 1,040 articles without a break. He may truly be said to have died in harness, for two articles from his pen were published in the "Derby Reporter" and the "Cheltenham Journal" on the Saturday after his decease. He was a local preacher for many years, and preached on the Sunday before he was taken ill. A sharp attack of bronchitis and an illness of one short week terminated his labours here, and he passed peacefully away, surrounded by his four daughters, on March 12, respected and beloved by all who knew him.—A. H. PEARSON.

Children as Handicaps.

My thanks are due to "J. C." and also Mr. Pocock for their kindly references, and especially to the latter for his practical advice. I should like to say that his is the way I intend to take things, for although my present place is not what might be termed an ideal charge, still there are many worse. Besides, I do not intend to allow my mind to become morbid or soured by vain regrets, but rather to carve out a reputation for myself with the materials and opportunities at my command. This spirit, I think, inspires every true gardener. I should like also to say that it was not merely because I happened to suffer through my children that I was prompted to "cry out"; it is the system or principle that I object to. I know for certain that there are at this present moment far better men than myself, men who have spent years of their life going from one large place to another, working for low wages, in order to get a thorough knowledge of the profession, who yet have to fill minor positions, even to labouring, simply because they have the misfortune to have two or three children. Now, is this common justice? No! Does it tend to promote that harmony and goodwill between the classes which is so desirable? The answer must be again in the negative. What excuse is there for such an unjust practice? The only explanation which has been vouchsafed to me is that employers cannot have children so close to the mansion. Well, it is said that any excuse is better than none, and this certainly seems a poor one to me, for it is nothing unusual for an employer to give fifty or hundred guineas for a single plant for his greenhouse, and yet he cannot build a house for his gardener (which might cost £150 or £200) out of sight of the mansion, so that he may have the happy companionship of his children, and where they may not be looked upon as a nuisance. The whole question, however, presents a very difficult problem, and

whether the gardener will ever get justice or not remains to be seen. Of one thing I am certain, that if employers withdraw this cruel and unnatural objection, they themselves, as well as the gardeners, would be the gainers. In conclusion, I should like to say that I should very much like to hear an account of my venerable friend's professional experiences during his long life. I shall keep a look out for it in the *Journal*.—T.

["Children as handicaps" raises a very difficult and delicate question. As an instance of this, we might point to the rule in many highly fashionable boarding houses in American cities, which absolutely prohibits the admission of guests who have children.—Ed.]

Nitric Diet.

We should esteem it a favour if you would make it known through your columns that we are not distributors of the so-called "Nitro-bacterine." Our advertisement of our "Nitric Diet" has lately brought in orders for the other product, which puts two parties to needless trouble and expense.—R. J. BARNES AND SON, Wyche Road, Malvern.

Apple, Norfolk Beauty.

When at Walpole Marsh, Norfolk, this week, Mr. G. W. Miller called my attention to the very fine appearance of the trees of this variety. They are most promising; clean, and of vigorous habit and growth. New breadths were being planted. Apart from the keeping quality, the fruits are large and of a pleasing appearance. It will rank as one of our best culinary varieties. Fruiting in the early years of its growth is another point not to be lost sight of.—STEPHEN CASTLE, 18/3/08.

Gardens for School Children.

The growing public appreciation of practical gardening as an element of good in the education of children is a matter of supreme satisfaction just now, when our system of public schools is undergoing both reconsideration and development. It may quicken and extend interest to make known how far the plan of attaching gardens to county council schools has already progressed. For this reason I commissioned Mr. Horace J. Wright, F.R.H.S., acting inspector of school gardens to the Surrey county council schools, to collect information, and this he has embodied in an interesting article in the new issue of my popular annual, "One and All Gardening" for 1908. The following is a summary of his facts and figures, which I think your readers may be glad to have in a concise form.

Forty-two county council districts have established school gardens in 600 elementary day schools. In these districts 8,300 pupils are now receiving garden lessons and practice. Each garden usually runs to half a rod or three-quarters in size. This generally means a piece of ground 27ft by 6ft, or 25ft by 6ft, or 29ft by 7ft. There are also many evening classes for young persons of both sexes, and these are highly appreciated in the neighbourhood of villages, where a youth can obtain in this way some scientific knowledge not easy for him to otherwise get. The leading place of honour in the movement is held by Staffordshire with sixty-five day school gardens and twenty-nine evening classes. The number of students is 1,258. A good second place is held by Surrey with fifty-nine day school gardens, eleven evening classes, and 1,126 students. Other counties honourably distinguished are East Suffolk, Wiltshire, Hants, Worcestershire, Derbyshire, Kent, Isle of Wight, Essex, Somerset, West Riding of Yorkshire, Warwickshire and Oxfordshire. These are given in their order of merit. Most other counties not here named have a few school gardens already established. In these districts it may be assumed that the system is under trial or in the experimental stage. Where the gardens have been well established the teachers seem to agree that actual gardening develops the children both mentally and bodily. The school lessons do not suffer. On the contrary, they are learned with greater alacrity and more evident pleasure and satisfaction.—EDWD. OWEN GREENING, editor "One and All Gardening," 92, Long Acre, London, W.C.

An Act Concerning Scents.

In olden times there used to be a still-room attached to English mansions, and the home-made fragrant washes and perfumes must have been very common. They were made from Roses, Elder flowers, &c. "The Chemist and Druggist" says that "in 1770 Parliament thought it necessary to bring in an Act that all women shall not betray into matrimony any of his Majesty's subjects by the use of scents, paints, cosmetic washes, artificial teeth, false hair, &c."

Societies.

R.H.S. Scientific Committee, March 17th.

Present: E. A. Bowles, Esq., M.A., F.L.S. (in the chair); Dr. M. C. Cooke, Messrs. C. E. Shea, R. H. Curtis, W. B. Hemsley, E. Hales, H. J. Elwes, J. T. Bennett-Poë, A. Worsley, L. de B. Crawshaw, E. M. Holmes, W. C. Worsdell, G. S. Saunders, H. T. Güssow, and F. J. Chittenden (secretary).

Agave and Yucca Diseased.—Mr. G. S. Saunders showed a specimen of each of these plants attacked by a fungus. Mr. Güssow took these to examine.

Curious Root of Dandelion.—Mr. E. M. Holmes showed a root of Dandelion having numerous lateral roots springing at right angles from the main root, and very much thickened.

Inoculation in Hornbeam.—Messrs. James Veitch sent branches of Hornbeam (*Betulus Carpinus*), taken from a garden hedge, in which a very perfect junction had occurred between the two by a sort of natural inarching or inoculation, as it is more properly called. Mr. Elwes drew attention to the fact that if young Hornbeams are planted so as to form a lattice, as time goes on, inoculation occurs wherever two stems come in contact, and finally an impenetrable hedge is formed.

Tubers of *Sechium edule*.—Large tuberous roots of this plant, grown from a tuber plant in a pot in the Melon house at Wisley, about the beginning of September, were shown by Mr. Chittenden. The plant had produced several large tubers, and these are said to be very palatable when cooked, and greatly resemble yams in appearance. The plant had been received under the name "*Chrystophine*," and is also called "*Choco*." The plants had not fruited at Wisley.

Crosses of Albino Orchids.—In reference to Mr. Hurst's communication to the last meeting upon this point, Mr. Rolfe wrote: "*Paphiopedilum insigne* Sanderæ x *P. bellatulum* album does not yield an albino hybrid (see *Orchid Review*, 1908, p. 72), as should have been the case according to the theory mentioned by Mr. Hurst at the last meeting. It has very numerous minute purple dots on both the petals and dorsal sepal, though the ground colour is whiter, and the spots fewer and very much smaller than when the ordinary forms of the species are crossed. *P. bellatulum* album 'selfed' would, I have little doubt, come true, and *P. insigne* Sanderæ x *P. Lawrenceanum* Hyeaneum I should expect to give coloured hybrids, because it is a precisely parallel cross to *P. insigne* Sanderæ x *P. callosum* Sanderæ, and combines the same quite distinct sections of the genus. In fact, *P. callosum* and *P. Lawrenceanum* (with, of course, their albino forms) are very intimately allied. The mysterious 'factor' supposed to be involved, I believe to be simply the opportunity for reversion which is afforded by crosses between such diverse species. The two combinations last mentioned should certainly be attempted."

Dwarf Form of *Rhododendron triflorum*.—From E. I. P. Magor, Esq., of St. Tudy, Cornwall, came a specimen of the dwarf form of *Rhododendron triflorum*, raised at the Royal Gardens, Kew, from seed sent there by Mr. Peter Barr. The plant is not a foot high, and flowers in Cornwall in the open from a month to ten weeks earlier than the type, the earliest date being the last week in February, 1905.

Seeds Germinating in Fruit.—From Mr. Cave, of The Gardens, Holker Hall, Cark-in-Cartmel, came a fruit of Tomato in which several of the seeds had germinated, some of the seedlings having thrust their way out through the wall of the fruit and become green. The phenomenon is not very uncommon, and examples may at times be found in Oranges, Lemons, Melons, and some other fruits, while in some plants, such as the Mangrove, it normally happens that the seed germinates while the fruit containing it is still hanging attached to the plant, and the same thing has been recorded as occurring in *Sechium edule*.

Dominance and Reversion in *Dendrobium* Crosses.—Gurney Wilson, Esq., of Glenthorne, Haywards Heath, showed pseudo-bulbs of a cross-bred *Dendrobium*, and of its parents, *D. nobile* Ballianum ♀ x *D. nobile* Murrhinianum ♂. The pseudo-bulb of *D. nobile* Ballianum is straight, while that of the other parent is zig-zag in growth, owing to the presence of a very marked projection at the nodes on each side of the pseudo-bulb alternately. Of 150 seedlings of this cross all showed in a marked manner in their pseudo-bulbs the zig-zag character of the pseudo-bulb of *D. nobile* Murrhinianum. In both parents the flowers are white, but have a faint purplish spot in the centre of the throat. In all the 150 cross-bred plants the flower has reverted to the typical colouration of the species, the spot in the centre of the throat being dark, and the other perianth pieces being marked with purple.

Diseased Plants, &c.—Several diseased plants and some insect pests were received, and will be reported upon at the next meeting.

Royal Meteorological.

THE DAWN OF METEOROLOGY.

The monthly meeting of this society was held on Wednesday evening, the 11th inst., at the Institution of Civil Engineers, Great George Street, Westminster, Dr. H. R. Mill, president, in the chair. Dr. G. Hellmann, the director of the Royal Prussian Meteorological Institute, Berlin, delivered a lecture on "*The Dawn of Meteorology*." He began by describing Meteorology as a science and as a branch of knowledge. He referred to the origin of weather proverbs, and gave instances of how some of the modern proverbs could be traced back to Indo-Germanic and Babylonian sources. Some of the tablets excavated from old Babylon, and which had been deciphered by English and German authorities, were found to contain references to the weather. Speaking of the names of the winds and their combinations, Dr. Hellmann said that the cardinal points, north, east, south, west, were found in old Babylonian times. The Greeks were the first to make meteorological observations, and had paraepmata, or weather almanacks, fixed on public columns. The measurement of rain was first recorded in Palestine. After referring to the first idea of the thermoscope, the lecturer alluded to the meteorology of Aristotle, and said that it had very little influence on English meteorologists. It was the Fathers of the Church who kept meteorology alive, for in their works on the Creation they devoted much attention to the atmosphere. The writings of the Venerable Bede were also referred to. The resuscitation of experimental science in the thirteenth century led to the development of regular meteorological observations in the fourteenth century. The earliest known record in this country was kept by the Rev. William Merle at Oxford, from January, 1337, to January, 1344, the manuscript of which is still in the Bodleian Library.

British Gardeners' Association.

ESTABLISHMENT OF A LONDON BRANCH.

On Saturday evening, March 21, a large number of gardeners from the public and private gardens of the metropolis met at "Carr's," in the Strand, for the purpose of establishing a branch of the B.G.A. Mr. Geo. Gordon, V.M.H., took the chair. He said that branches of the association could do much to help on its aims and objects. A branch in London would be particularly useful, as it would form the nucleus for gatherings of gardeners in the whole suburban area, as well as in London proper. Meetings could be held frequently, and while the grievances of gardeners were not to be overlooked, but rather to be kept prominently in view, there was no reason why other matters than grievances should not be dealt with profitably at the meetings. Mr. Gordon briefly outlined the functions of a branch, that it would appoint its own committee, and select its own officials—everything, however, being in accordance with the established rules of the B.G.A., and subject to the authority of the Executive Council.

In supporting the resolution to form a branch, to be officially known as the "London Branch," Mr. Frogbrooke called attention to the fact that a large number of the unemployed had registered with the various Distress Committees as "gardeners." This was the case in his own neighbourhood, and out of the men who professed to be gardeners, he found out on examination that they were really only labourers—and very unskilled even then. The B.G.A., he said, would be doing good work by calling attention of the public authorities to the fact that they were being imposed upon by labourers who posed as gardeners, and that gardeners generally should protest against unqualified men being officially regarded as gardeners by public bodies.

Mr. C. Harding said that the date of this meeting would be a red-letter day in the annals of London gardeners, and he hoped the London Branch of the B.G.A. would do something towards calling attention to the conditions of employment in various gardens. The L.C.C. were realising the importance of a training in gardening, as they were now offering scholarships. He objected to the practice of flourishing nurseries accepting the labour of qualified men for the miserable pittance of 12s. or 15s. per week, under the pretence of finding them a place, and then keeping them for months in the nursery.

After some explanatory remarks from the general secretary (Mr. J. Weathers), the London Branch was inaugurated with the following officers and committee: Mr. E. F. Hawes (chairman), Mr. R. J. Frogbrooke (vice-chairman), Mr. A. J. Hartless (secretary), and Messrs. Barnes, Parrott, Gorham, Gibson, Harding, Winter (representing public parks and gardens), Hill, Cresswell, Wood, and Bryan (private gardeners), Lewis (nursery), and Castle. Meetings will be held on the second Thursday in each month in the year (except in June, July, and August), at Carr's Restaurant, and will be open to all gardeners, whether members of the B.G.A. or not, at eight o'clock. The first meeting will be held on Thursday, April 9, when Mr. Hawes will lead off with a paper.—J. W.

Isle of Wight Horticultural.**"A SEASON'S TREATMENT OF VINES."**

At the monthly meeting of the above, held at the Literary Society's lecture hall, Newport, on Saturday, March 7, Mr. T. Collister presided over a good meeting of members to hear a lecture by Mr. A. Maslen, Steephill Castle Gardens, Ventnor, entitled "A Season's Treatment of Vines." After a few introductory remarks Mr. Maslen gave a most exhaustive and thoroughly practical lecture, detailing the mode of treatment he adopted, and to which he owed his success as a cultivator. The chairman proposed a hearty vote of thanks to Mr. Maslen for his most excellent lecture, which was ably seconded by Mr. Morgan, and carried unanimously. Mr. Maslen having suitably replied, a most interesting and profitable discussion followed, in which Messrs. W. W. Sheath, H. Stephenson, W. Pascoe, H. Cogger, C. H. Snook, the chairman, and others took part. The most salient points touched upon were the construction and composition of Vine borders versus market growers' methods; splitting of berries, scalding, shanking, thinning, fertilisation, and the use of manures, both natural and artificial. After the lecturer had answered several questions in an able manner, a vote of thanks to the chairman brought a very pleasant meeting to a close.

EXHIBITS.—Mr. W. W. Sheath, F.R.H.S., exhibited spikes of the new *Primula Kewensis* of the verticillata type, and which he recommended to both his amateur and professional friends as a decided acquisition to our winter-flowering greenhouse plants. Mr. H. Cogger, Pitt Place Gardens, staged nice fresh blooms of the *Chrysanthemum Princess May*, and a spray of the useful winter-flowering *Begonia corallina*. A unanimous vote of thanks was accorded the exhibits.—K.

Croydon Gardeners'.**VINE CULTURE.**

On Tuesday last, the usual fortnightly meeting of this society was held at the Sunflower Temperance Hotel, when Mr. F. Oxtoby presided over a capital attendance of members, who had come to welcome an old member and supporter, Mr. W. Lintott, Marden Park Gardens, and to hear what this successful cultivator of Grapes had to say on the subject. In a homely and at times humorous manner, Mr. Lintott exposed the methods he adopts to grow this tempting and luscious fruit. Knowing so well the excellent bunches Mr. Lintott exhibits at the various flower shows in this district and also at the Royal Horticultural Society's Hall, London, everybody expected to hear of big sums spent to produce these premier exhibits, but in his opening remarks he dispelled these ideas, for apparently he grows them on most economical lines, thereby showing that with much perseverance and careful study of detail it is possible to produce such excellent results.

His Vine borders are made of ordinary garden soil, which is very surprising, for it is generally considered necessary to use only turf loam and made in the piecemeal fashion. However, the secret of his success seems to be in the top-dressing of the borders, in which he encourages surface roots as much as possible. The soil for top-dressing is made of decomposed organic matter, wood ashes, and mortar rubble, and this well forked in before starting growth of the Vines. Previous to this he allows the soil to become quite dry, then application of clear water in abundance, followed by undiluted manure water from the stable manure heaps. This is constantly applied before the growing period commences. The surface dressing is then put on and moisture withheld from the roots till the Grapes are set. He was not forgetful of mentioning the essential point of well cleaning the houses and rods before commencing growth, advising the use of Gishurst compound and hot water applied with a stiff brush, and this to be done thoroughly. His first houses are commenced in December in a temperature of 50deg to 55deg by night, gradually increasing it to 60deg to 65deg F. as growth appears. Early thinning he advises in most instances. Ventilation is another important item, and this must be carefully attended to, otherwise the dreaded rust will appear. When Grapes are colouring plenty of moisture may be added, also more ventilation. Only slight shading is advocated by him. To obtain a good fruit one must have good foliage, for the leaves are the lungs of the plant. Red spider and thrip must be watched for, and on the first signs of these pests sponge the affected parts at once. After cutting the bunches he advised thoroughly syringing the house and cleansing the foliage, when the necessary rest to the plants should be given. He commences gathering in early June, and by the end of December the different varieties he grows completes his crop. There is one new variety, Prince of Wales, he highly recommends. Several questions were asked him, and his generous response to these concluded a highly instructive paper. His audience were unanimous in conveying a hearty vote of thanks. To add to the interest of the evening there was a fine display of exhibits, Mr. Edwards showing a pot of Van Sion Narcissi; Mr. Chaff a pot of *Clematis montana*; Mr. Mills a grand specimen basket of

Nephrolepis; Mr. Oxtoby forced Rhubarb; Mr. Thrower a well-flowered *Lycaste Skinneri*; and a very fine plant of *Dendrobium nobile* came from the gardens of Mr. Wagner, Coombe Road, which did great credit to his gardener, Mr. A. May.

Redhill (Surrey) Gardeners'.

The Redhill and Reigate Gardeners' Association held their fortnightly meeting at St. Matthew's Parish Rooms on March 17, Mr. Seaman presiding. A second-class certificate was awarded Mr. W. Cooper, Kingswood Manor, for six *Primulas obconica*. Mr. D. Watson (representative of the Guildford Gardeners' Association) gave a most interesting paper on "Wild Gardening." A very hearty vote of thanks was accorded the lecturer.—G. P. S.

Cardiff Gardeners'.**ANNUAL MEETING.**

The twenty-second annual general meeting of the above society took place at the Philharmonic Restaurant on the 17th inst., Mr. H. R. Farmer presiding over a large attendance. The honorary treasurer, Mr. Malpass, produced the balance sheet for the year ending, which was considered satisfactory; and the secretary reported upon the successful meetings that had been held during the session 1907-08, and of the strides the society had made. J. J. Neale, Esq., J.P., was asked again to become president. The vice-presidents were also asked to allow their names to remain. Mr. H. R. Farmer was re-elected chairman; Messrs. T. Malpass and R. T. Went were re-elected hon. treasurer and secretary respectively. The committee were also re-elected, with an addition of three, making the total eleven, on account of the large increase of members, and of the area from which they come. A vote of thanks was accorded, and carried unanimously, to the editors of the local and horticultural Press for their kindness in reporting accounts of the meetings throughout the year.—R. T. W.

Newport (Mon.) Gardeners'.

At the meeting held on March 11, Mr. R. Long, junior, gave a paper on "*Begonia Gloire de Lorraine*," which was short and practical. The chief item of the evening was the judging of plans for a kitchen garden of two acres. There were but two entries, and both from young members. Mr. H. Basham was awarded first prize, and Mr. R. Long, junior, second. For three pots of Narcissi, Mr. D. Powell, first; Mr. J. Pegler, second. For three pots Hyacinths, Mr. Long, first; Mr. Pegler, second. Two pots Freesias, first, Mr. D. Powell.

Beckenham (Kent) Horticultural.**ANNUALS.**

On Friday, the 13th inst., Mr. Alexander Dean, V.M.H., lectured to the above society, the subject being, "Annuals." Councillor A. J. Baker presided. The lecturer made out a strong case for annuals, showing how good displays may be made with them, and with but a very moderate expenditure of money. Select lists of annuals were given with flowers of white, blue, red, and yellow, and it was suggested for large beds to take, say, a dozen kinds with white flowers, or a dozen kinds with blue flowers, and mix the seeds together and sow. These would not all flower together, but would make an attractive display for a prolonged time. Mr. Dean was very warmly applauded at the close of his lecture. The society's certificate of merit was awarded to Mr. J. Northfield, Raleigh, Beckenham, for well-grown plants of *Primula obconica*.—T. C.

Reading Gardeners'.

At the meeting of the above association, held in the Abbey Hall on Monday, the 2nd inst., the subject for the evening was "Violets," and was introduced in a most practical and interesting manner by Mr. H. C. Loader, of Holme Grange Gardens, Wokingham, who first of all referred to the great popularity of this beautiful flower. It was beloved by all on account of its simplicity and fragrance. Full cultural details were given under the following headings: Position of frames, time to commence operations, situation, preparation of soil, propagation, planting, early summer treatment, preparing winter quarters, lifting and planting, ventilation, watering, &c. Fogs were mentioned as the worst enemies to the growth of Violets. The other enemies were spot, red spider, and scald. There were several fine exhibits, notably a group of Sutton's Superb Cineraria staged by Mr. J. Carter; several excellent plants of Freesias, carrying some splendid trusses of flowers, shown by Mr. F. Alexander, The Gardens, Warden, Southcote Road West; an excellent display of seven varieties of Violets by Mr. W. Turnham, The Gardens, Culham Court, Henley-on-Thames; and a bunch of *La France* Violets of remarkable size by the lecturer.

On the 16th inst. the subject was "Some Insectarian Reflections," and was introduced by Professor Cole, of the Reading University College. At the outset the lecturer stated that he

should treat the subject from a scientific rather than from a practical point of view. The various parts of an insect was dealt with, special emphasis being laid on the sight, smell, and flight. The life history of the green fly brought a very interesting discourse to a close.

Commons and Footpaths Preservation.

Lord Eversley presided over the monthly meeting of the Commons and Footpaths Preservation Society, held at 25, Victoria Street, Westminster, on March 6. Amongst others present were Sir William Vincent, Bart., Sir Robert Hunter, Mr. J. F. L. Brunner, M.P., Mr. Trevelyan, M.P., Mr. E. Bond, Mr. H. C. H. Verney, Mr. Percival Birkett (hon. solicitor), and Mr. Lawrence W. Chubb (secretary). It was reported by the chairman that the society had received from upwards of 200 members of all parties of the House of Commons promises to support its Rights of Way Bill introduced by Mr. R. Winfrey, M.P., the second reading of which had been set down for May 29. The Bill provides that proof of the use of a way for twenty years without interruption or permission in the case of freehold land, or forty years in other cases, shall be sufficient to enable a court of law to assume that dedication has taken place.

The solicitor stated that in consequence of the society's opposition, the Liverpool Corporation had withdrawn from its General Powers Bill a clause which would have enabled the corporation to shut up public footpaths running over its Rivington waterworks catchment area without complying with the safeguards imposed in the public interest by the Highway Acts. The threatened sale of the site and grounds of the Duke of York's School at Chelsea was also considered, and it was unanimously resolved, upon the motion of Sir William Vincent, seconded by Sir Robert Hunter, "That in the opinion of the society it is eminently desirable that if the removal of the Duke of York's School from Chelsea to Dover be completed, a portion of the present site should be reserved for open space purposes, especially as it is understood that the cost of the removal would be more than met by the sale of only two-thirds of the site at Chelsea, and that such action as may be necessary be taken on behalf of the society in Parliament or elsewhere to attain this end."

It was reported that the society's scheme for the regulation of Towyn Trewan Common, Anglesey, a tract of 1,300 acres of open land, was proceeding satisfactorily, and that up to the present £1,391 had been received or guaranteed towards the £1,800 needed to acquire Ludshott Common and the wooded slope facing Waggoners Wells, Bramshott, 560 acres in extent, and one of the most beautiful commons in the Hindhead district. It was stated that only three weeks remained for raising the residue of the purchase money, £407, and it was decided to issue an appeal for this sum. The society decided to oppose the proposal of the Swansea Corporation to erect a large lunatic asylum on Clyne Common, and it was reported that the society was advising local authorities and members of the public in 150 cases of obstruction of rights of way or enclosure of commons, village greens, or roadside wastes.

Metropolitan Public Gardens Association.

At the recent meeting, invitations were received to the Congress of the Playground Association of America at New York in September, and of the Institute of Public Health at Buxton in July, and to the annual dinner of the Metropolitan Mayors and ex-mayors. Letters were read from the London County Council, and the Chiswick District Council, agreeing to take steps to oppose the London and Windsor Motor Road Bill in order to protect Ravenscourt Park and Stamford Brook and Back Commons, which are seriously affected by this Bill. A letter was read from the Charity Commissioners stating that they had decided not to sanction the proposed sale by the Ironmongers' Company for building purposes of the almshouses and garden in Kingsland Road, Shoreditch, which scheme the association, the National Trust, and others had vigorously opposed at the recent inquiry, and the Commissioners said that they had regard, in arriving at this conclusion, to the desirability of retaining open spaces in the metropolis, and of preserving ancient buildings.

A resolution was passed in favour of the principle of the Daylight Saving Bill, now in the House of Commons. It was also agreed that if it was not possible to retain the Duke of York's School in whole or in part at Chelsea, it would be highly undesirable for this fine open area to be entirely developed for building purposes, but that some portion should be reserved as an open space, and that representations should be made to that effect to the Secretary for War, and to the Commissioner of Works. A number of applications for organising window garden competitions were granted, and good progress was reported regarding the lopping of trees in Kensington thoroughfares, and the extensive tree planting operations with which the association is concerned in East Ham and Walthamstow districts. It was stated that during the month the association had planted trees at the west end of Westminster Abbey and in

Southwark Cathedral yard, and had completed the work of removing asphalt and rubbish improperly laid round the roots of the fine trees in Spitalfields School playground, by reason of which the trees were being suffocated. Schemes were under consideration for acquiring thirty acres of land at Gipsy Road, Norwood, or part of Grove Hall Estate, Bow, and an additional twelve acres adjoining Ruskin Park, for which balances of £2,000, £400, and £8,000 were respectively required from voluntary sources. It was agreed to take steps to secure disused burial grounds in East India Dock Road, Poplar, and at Coxson's Place, Bermondsey, in order to adapt them for public recreation, and to grant seats for sites in Isleworth and elsewhere.

West Indian Horticulture.

Mr. W. Sands writes in the "Kew Guild Journal" from St. Vincent, as follows:—"You will be glad to learn that I escaped unhurt from Jamaica, where I was representing St. Vincent at the Agricultural Conference. All the other Kewites also got out safely. Although the conference was brought to such an abrupt termination by the dreadful earthquake, I had the pleasure of meeting several old Kewites, among them being Cradwick and Harris of Jamaica, Jones of Dominica, Ward of Demerara, and Moore of St. Lucia. We could not arrange, as at Trinidad in 1905, a special Kew Guild dinner, the forces of Nature prevented us; but I do not think that anything short of what we experienced would have prevented us holding a little 'convivial.'

"The West Indies have certainly got a big name for 'convulsions' of one sort and another; but still we manage to exist, and soon forget. Our thoughts are so much occupied with our multifarious duties that volcanic eruptions, earthquakes, and hurricanes are details which distract our minds for a short time only. The chances of a sudden death are not, to my mind, any greater than in the Old Country. Life is very congenial in this part of the world as a whole, and would be still more so if my salary was a bit higher, so as to enable me to see home at more frequent intervals. This is the drawback, for one is lucky if he sees England once in five or six years. However, I cannot complain, as I have enjoyed excellent health during the eight years I have been out here.

"I like my work, and as head of rather a large department, I get plenty of it. When I mention a few of the branches you will quite understand that I have a good deal to do and be responsible for. For instance, I have the control of the botanic gardens; agricultural school and stock farm, where Mr. Patterson is the resident master-in-charge; a large central cotton ginnery; the working of the agricultural side of the large land settlement estates; agricultural instruction work in the country districts and the Government Veterinary Department; besides which I am honorary secretary of the local agricultural and commercial society, and honorary correspondent to the West India Committee.

"Present Kewites, reading these lines, who contemplate gaining appointments in tropical colonies, and wish to get on, should seriously consider beforehand the nature of the duties they are likely to be called upon to perform, and devote as much as possible of their spare time to their study. A good knowledge of the sciences applied to agriculture and horticulture is very helpful. Of course, I am assuming that a sound practical knowledge has been and is being gained. Provided a man has this knowledge, that is both practical and scientific, he would soon adapt himself to the entirely different conditions prevailing in the tropics, and prove himself a useful officer, without having to plod along for two or three years working, as it were, in the dark.

"I live in hope that Kew will eventually form a special Tropical School for those who are desirous of obtaining appointments in these and other tropical countries. This is a matter I have often discussed with fellow Kewites who have been through the mill, and who have had to fight their way, and who, like myself, foresee that unless some special branch such as I have suggested is formed, other men with little or no practical training will fill important posts which could be occupied by Kew men. These would stand a much better chance of doing well if their studies were directed by experts with considerable agricultural and horticultural experience in the tropics.

"You will be pleased to hear that St. Vincent is going ahead well with her agricultural industries. The Cotton, Arrowroot, and Cacao crops are realising good prices, and everybody here is very sanguine of future prosperity. The Sea Island Cotton industry is now booming here, and has become very important. The prices obtained for our lint vary from 26d. to 30d. per lb at the time of writing. We are producing the finest cotton in the Empire, and as I have had a great deal to do with the establishment of the industry, I naturally feel proud of the satisfactory position attained. Our output will be about 600 bales this season, and probably double this quantity next."

Market Gardening Notes.

A HOME-RAISED MARKET FERN.

Such is *Pteris Distinction*, raised from spores, the result of crossing. P. Wimsetti was the mother parent. I found this being grown largely by the raiser, W. A. Cull, Bury Street Nursery, Lower Edmonton. It has made its mark in the market, and therefore it was not surprising to see it in good evidence when I called. A good grower, and very true from its own spores, it should be still more widely known. It is of graceful habit, quickly making a plant, and of a very useful type. While 60's are the favourite selling stock, a succession of 48's are ready for sale.

MARKET "GERANIUMS."

While the firm of J. Hill and Son, Barrowfield Nurseries, Edmonton, are noted for their high-class market ferns, the subjects of my heading are also equally well cultivated. Thousands have been struck since Christmas, and are now full of roots in thumbs, ready for 60's and 48's. Grown largely in heated frames, there are, in addition, whole houses devoted to their growth; thus one was filled with 10,000 West Brighton Gems in 48's. Paul Crampel is very largely grown; a good doer. A regular system of culture ensures success.

MARKET GRAPE-GROWING NEAR LONDON.

It is still pleasing to find a very considerable line still being done in the northern districts, and this note is the result of my call on H. B. May and Sons, Windmill Nursery, Edmonton. First as to the practicability and success in cutting down old rods. Spans of 160ft long, where the rods were cut two years since, now furnish double fruiting rods half way up the house. Another house, cut down last year, was also doing well; far better this than pulling up. A nice "hang" of Gros Colman under the canvas was being cut, and will be cleared out this week (March 18).—STEPHEN CASTLE.

Publications Received.

Sainfoin as a farm crop, by Hugh E. Raynbird, Basingstoke.

Insects injurious to the Vine in California, by H. J. Quayle. Bulletin No. 192. University of California, Berkeley.

City of Boston, Mass., Department of Parks. Thirty-second annual report of the Board of Commissioners for the year ending January 31, 1907.

Field Experiments in Staffordshire and Shropshire, and at the Harper-Adams Agricultural College, Newport, Salop. Joint report for season 1907.

Best Wine Grapes for California, Pruning Young Vines, Pruning the Sultanina, by F. T. Boiletti. Bulletin No. 193. University of California, Berkeley.

Meteorological Notes and Remarks upon the weather [in Glasgow] during the year 1907, with its general effects upon

vegetation, by Mr. James Whitton, superintendent of Parks and Curator of the Botanical Gardens, Glasgow.

Studley College Agricultural Journal, Vol. III., No. 10, March, 1908. Chief contents:—The struggle of plants with their environment; the "habitant"; a study in French Canada; hardy flowers from seed; and plant gall mysteries explained. The price is 6d.

One and All Gardening, 1908, edited by Edward Owen Greening, F.R.H.S. London: Agricultural and Horticultural Association. Price 2d. The thirteenth issue of this popular annual is as full, as varied, and as copiously illustrated as any of its predecessors. The first edition printed of 100,000 marks the confidence of the publishers in a large demand.

Symon's Meteorological Magazine, January, 1908 (Index number); and February, 1908. The first of these contains articles on the rainfall of 1907, the Christmas snowstorm of 1906 in Eastern Europe, and meteorological service in Jamaica. The second contains notes on learning meteorology, weather of January, 1908, black rain in Ireland, &c.

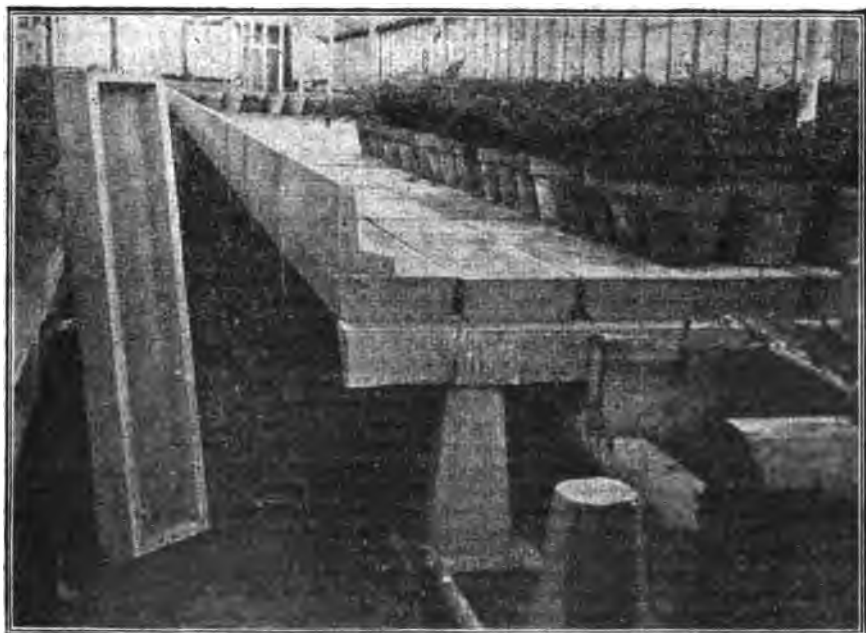
Journal of the Board of Agriculture, February. Price 4d. Chief contents:—The marketing of poultry; experiments with calcium cyanamide; the pruning of the Peach; blindness in Barley; warning against the use of damaged seed; "mildew" of Swedes; caution to purchasers of home produce; the Currant bud mite and the Hazel bud mite; the bulb mite; Gooseberry black knot; notes on insect, fungus, and other pests; food habits of wood pigeons; collection of agricultural statistics; area devoted to fruit cultivation; agricultural credit banks in the Colonies; samples under the Fertilisers and Feeding Stuffs Act.

The Estate Magazine, March. Chief contents:—Shugborough Hall, Stafford; agricultural notes; books of the month; butter adulteration; climbers; road-making; beetles damaging Ash trees; Japanese Larch; pictures of old windmills; to preserve zinc roof; disposal of fruit and book-keeping; country house lighting; how to learn farming; average cost of keeping farm horse; basic slag; an experiment on grass; dairying; ducks on the farm; gardening items; hopper system of feeding chickens; Onion maggot; evolution of British pigs; a Pine disease; planting on the sod or on ploughed land; to destroy rats; a chat about Rose pruning; the Royal Show; small holdings; spraying fruit trees; sulphate of ammonia from peat; waste by tenants; top-dressing Wheat.

Concrete Benches.

At the establishment of Mr. Frank Garland, Des Plaines, Illinois, U.S.A., the staff uses what spare time is available in the construction of concrete benches in the different houses. The illustration herewith (copied from the pages of "The Florists' Exchange," New York), shows the style of construction of the bench, and represents a portion of a new bench being at the present time installed to replace a wooden one.

The bench is built on the portable principle. The sides, bottoms, cross-pieces, and the legs are all made separately from different moulds, and any number of them may be made in advance. The bottom sections are hollow, with the edges tapered sufficiently to give good drainage. A bottom section is seen in the picture at the left of the bench. The mixture employed in the making of the different sections, with the exception of the legs, is one part of cement to four of gravel and sand. For the legs a mixture of one part of cement to six or even eight of gravel and sand is employed. The side, bottom, and cross-sections are all reinforced with steel rods. The different moulds are used on a work bench, the concrete being rammed into them, and the steel rods laid in their positions during ramming. This construction provides a bench which may be moved at any time, in whole or part, as all sections are laid butt to butt, there being no cementing substance used other than a little mastic on the outside of the side pieces to give the appearance of solidity, and this joint is easily broken when required. One large house at the Garland establishment has been provided with these benches for two years, and they have given every satisfaction. Mr. Garland figures their cost as being in the neighbourhood of six cents per foot.



Movable Concrete Benches.

Young Gardeners' Domain.

•• The best composition, from the points of view of originality and literary merit, is that of Mr. Norman Bruce, who, however, won the prize only a week or two ago. A book prize is accorded him on the present occasion. In sending his contribution he informs us that this week he has to undergo an operation for appendicitis. We trust he may speedily recover and become strong again. The prize of 5s. is awarded to Mr. Harry Turner for his letter hereunder:—

Gloxinas.

These charming plants naturally hold a very prominent position in our gardens to-day, not only by reason of their many exquisite and delicate hues, but also as decorative subjects. Methods of propagation are threefold: (1) dividing the old bulbs when growth commences; (2) leaf propagation, and lastly (3) by seed sowing. The first two are generally used when it is desirable to increase any variety of special merit. When the leaf plan is adopted they may either be dibbled into small pots of light sandy soil with their stalks intact, or spread the leaves on a warm moist sand-bed, after nicking the main rib, when bulbils will readily form. It is advisable to peg them down, or otherwise secure them until roots are emitted.

As it is quite an easy matter to obtain good flowering plants within six months from the time we sow the seed, and with so many excellent strains for selection, it becomes only natural that this latter is the most popular way of raising them. They may be sown at any time from the New Year until the end of the present month, for the summer display; and June or July for winter flowering. The pots or pans should be efficiently drained, and then nearly filled with a nice light compost, which has previously been put through a fine sieve, taking care to ensure an even surface. Should the soil approach dryness, immerse the receptacle in a tank of tepid water, letting it drain well away before sowing the seed. If covering be done at all, it must be very lightly, and then protect with a square of glass. Shade from sunlight, and plunge in a moderately brisk bed of leaves and litter. No more water should be necessary until germination has begun, when, if required, it should be given as previously, and until such times as the plants are given the first pot. In a temperature ranging from 65deg to 85deg the seedlings make rapid headway, and should soon be ready for pricking out in pans or shallow boxes, filled with soil similar to the seed compost, always maintaining a moist healthy atmosphere, and rigidly shielding them from bright sunlight. They will then in a few weeks be ready for potting off. The larger ones into 3in. and the others into 4in, using a little coarser rooting medium. In most cases only one more shift is required, which should be into 48's or 54's, according to the strength of the plant. For this potting the soil must be more lumpy, and the loam if of good quality may be rather more than one-half, otherwise use more peat; add some leaf soil, and ensure porosity by adding nuts of charcoal or crocks and some good sharp sand. Some growers recommend for this shift the addition of a little dried cowdung.

In watering, a happy medium should be the aim, as the Gloxinia is adverse to either extreme. Whilst syringing overhead is not advisable, do this freely between the pots and about the structure generally, for the plants appreciate plenty of atmospheric moisture, and it will check the advent of red spider or thrips, to which they are liable at times. The flowering season may be considerably prolonged by removing them to cooler quarters. As the plants pass out of flower gradually reduce the supply of water until the foliage is quite ripe, when it should be dispensed with entirely, and the bulbs given a thorough roasting in the sun previous to storing them away in a temperature ranging from 40deg to 50deg until growth once again gets active.—HARRY TURNER, Lockinge Gardens.

Spring.

'Tis the middle of March, and the grey dawn breaks with a dull sky. Dotted here and there are large, black, evil-looking clouds, leaving behind them, as they seem to glide along, little islands, like as the tide of the ocean going out shows little mounds of sand over the blue surface. The sun showers its watery rays from its rising place in the East, only to be darkened again by one of these monstrously ominous clouds. Everywhere seems bleak and dreary, and gives signs of another winter's day. As the watcher gazes into the heavens his heart bounds, as he sees the sun at last showering its splendour over all the earth, and the clouds turning themselves, and showing their silvery lining. Then another change. Whiz! comes the wind round the corner, snatching up anything that is in its way, and carrying it we know not where.

The roads are strewn with fallen twigs, doors bang, windows rattle, and the smoke from the fires is wafted back again down the chimneys. Here are two little dots on their way to school, with their jackets held out at arms'-length, so

that the wind can catch them and blow them along. The birds take refuge in the sheltered parts of the house-tops. Here and there we see a more adventurous blackbird or rook trying to make headway for some distant tree.

Now is the time when our toil and labour of the autumn is indeed rewarded. First we notice the Snowdrop bending its head as if to avoid the piercing winds; then the Scilla, with its pale blue petals and beautiful bell-shaped flower; also the Crocus shows itself, bursting from its sheath in its three glorious colours of purple, white, and gold. Soon the Daffodil and Hyacinth make themselves known by wafting their fragrant breath into our faces; and the Tulip with its stately head and beautiful foliage will come after.

This is the month when gardeners and farmers are to be found digging, raking, harrowing, and sowing, for it is called March, the first of Spring. The trees break out, and the autumn-sown seeds spring up from their winter's resting place, and to the lover and cultivator of Nature, this is the most beautiful and busiest time of the year. We have hardly time to sleep, for this wants transplanting, and that wants potting, and before we know where we are they all want doing over again.

Surely this is a recompense which God gives us for going through the dreary winter, for without winter, without spring, or as Caroline S. Bailey says in "St. Nicholas":—

A little bit of blowing,	A little bit of sleeting,
A little bit of snow;	A little bit of rain;
A little bit of growing,	The blue, blue sky for greeting,
And Crocuses will show.	A Snowdrop come again.
On every twig that's lonely,	And every frozen hillside,
A new green leaf will spring;	Its gifts of grass will bring;
On every patient tree top	And every day of winter,
A thrush will stop and sing.	Another day of spring.

—NORMAN PERL BRUCE, March 15, 1908.

Chionodoxas.

Among the host of spring flowering bulbs that give such a variety of colour, there is one in particular I should like to say a word or two about, I mean the Chionodoxa. There are several species, of which I will mention a few, all of them being beautiful. The flowers are borne on stems 6in to 8in high. The varieties vary in the number of flowers which they carry, some having only two, three, or four; while others bear many. C. Luciline has flowers of a lovely blue shade with a white centre, and there are two newer forms of this, alba and rosea. C. Tmolusi, blue, with a large white centre, C. sardensis, deep blue, are both very good. C. gigantea carries large flowers, often measuring an inch and a half across, and of a lavender shade. G. alba, the white form, is of later introduction, and is an excellent variety. These two flower a little later than those I have mentioned.

They are of easy culture, and not very particular where they are planted, but revel in the sunshine, providing it is not so hot as to bake the bulbs. They also do very well in the shade. Fine results are obtained where they have soil of a loamy nature to grow in, yet in an ordinary garden soil they will make themselves at home. They can be readily propagated by offsets once they get fully established, or can be raised from seed. The best time to plant them is the autumn, about 3in deep. In concluding my paper, I might add that there are many little nooks and corners in our gardens which often remain empty, and could be made bright with these subjects if a few were dotted in at the right time.—T. N.

Papavers or Poppies.

I have noticed with pleasure the growth of these plants in public favour, and I think when one looks at the many spots in our gardens that can be filled with the different varieties, the favour is not in any way misplaced. The herbaceous plant border does not seem complete without a few clumps of the Oriental Poppy. It is worth growing for its handsome foliage alone, to say nothing of the beautiful blooms with which it is furnished from June until late in July. There is a splendid choice of varieties now on the market, with colours varying from a brilliant scarlet to the beautiful new hybrid Queen Alexandra, with its flowers of rosy-salmon blotched with crimson. The seed should be sown in the open in May, pricking off as required, and shifting into permanent quarters in the autumn or early spring. The plants will grow in almost any soil; but they will be seen to more advantage if the ground is deeply trenched and a good sprinkling of rotted manure is worked in.

Papaver alpinum, too, is another of the herbaceous section. This is more often used in the rock garden, and offers a splendid range of shades. It is only 6in in height, and should be sown in May; but if sown earlier would flower late in the same year. Papaver nudicaule, the well-known "Iceland Poppy," somewhat resembling P. alpinum in flowers, is taller. It is mostly catalogued as a perennial; but it is best treated as a biennial. Yellow predominates in the forms of this variety. A packet of mixed seed, however, will generally render a good

range of colours. As regards the sowing, it should be treated as for *P. alpinum*.

The genus also includes a good many that are annuals. Of these I think I need only mention our old friend the Shirley. It is seen at its best if sown very thinly in masses, and makes a splendid subject for the wild garden. It produces the finest blossoms if sown in late summer for blooming the following June. But it can be treated as any ordinary annual, and be sown in April. It is a mistake to sow thickly, as when crowded the flowering period does not last half as long. The two latter varieties are much prized for decorations. The petals are apt to drop quickly if cut at an advanced stage, but I have noticed that this disadvantage is easily overcome if the flowers are cut just before the calyx finishes splitting, and the cut portion of the stem then immersed for a few seconds in hot water (carefully finish easing the calyx and blow the flower open). The then crinkley state of the petals, though unnatural, tends, if anything, to heighten the effect.—H. Wood, Lydhurst Gardens, Haywards Heath, Sussex.

Original Composition.

The above is, perhaps, a somewhat unusual subject for the young gardeners' page in the *Journal*; but I do not think it will appear out of place. Composition is the combination of the parts of a literary work. Original composition is the combination of the author's own thoughts, suggested by himself, and put together by himself on paper. An unoriginal composition is therefore a collection of thoughts other than the writer's own, written on paper. Thus, the difference between the two compositions is, that the former is composed of entirely fresh thoughts, and the latter is not. Take for an instance an author who publishes a book on a well-known subject that has been discussed by others many a time before. Readers of the book naturally expect to find fresh suggestions within its pages on the well-known subject. Suppose the subject is "Vine Culture." Gardeners who purchased the book and read it through, would expect to find new suggestions for successfully cultivating various varieties of Vines from the author's own experience. They may find what they expect, or they may only find the same methods of cultivation recommended as in previous works of others on the same subject, but composed in a different way. I appeal to young gardeners writing in the "Domain," especially on cultural matters, to write as many new suggestions as possible, and then readers will find what is wanted—fresh and more successful methods of cultivation. Year by year fresh methods of cultivation, with results nearer perfection than before, are being discovered and practised with success. Why not more? Successful cultivation is the backbone of horticulture, and every improvement made helps to strengthen it.—W. SPILLERT, Quex Park Gardens, Birchington, Kent.

Lachenalias.

These pretty spring-flowering bulbs are at the present time in full flower. I find them to be among the easiest of bulbs to grow, as they require very little heat, and make a splendid show in the spring. It is quite possible with a little forcing to get the flowers out by Christmas. The first batch should be potted up in August, and the next about six weeks later, so as to get a succession of blooms. This is a plant which is often spoilt by overcrowding. About four or five bulbs in a 5in is ample, or a single bulb in a 60-size. The large bulbs should be used for potting, the smaller ones may be planted in a box and be kept for stock. The soil for potting should consist of about two parts loam and one each of leaf soil, sand, and dried cow dung. Water may be withheld until growth commences, and then they should be watered carefully, never allowed to get dry. Place them on a shelf near to the glass, and as the flower spikes appear an occasional watering with liquid manure will be found most beneficial. When in full flower they should be placed in cool greenhouse or conservatory, where they will last for a considerable time. As the stems are slender and apt to snap, stake them; then after the flowering is over, and the plants show signs of decay, gradually reduce the supply of water. During the resting season no water need be given, but the pots can be fully exposed to the sun, so as to get the bulbs well ripened, which is of great importance to the next season's result. They should be well ripened up by August.

They may also be grown in baskets suspended from the roof. The bulbs should be placed all around the interior of the basket, and to prevent the soil coming through, line it with moss. Start them in August, using the same compost as before. Should they appear unsightly until they commence to grow, they may be started in a frame, and then hung in their flowering quarters afterwards. With a little top-dressing, and a supply of liquid manure when growing, they will last for several years in one basket. There are several kinds of Lachenalias, including pendula, aurea, luteola, but the best and most grown is Nelsoni, which is far more robust in growth than the others.—H. S. FINCHER, Somerleyton Hall.



Wet Hives.

It is a matter of certainty that some hives will, on the termination of the bad weather, be found damp, and in some cases running with wet inside, which the bees will be unable to expel, and some assistance will be rendered necessary to assist them. This condition arises through the absence of outer protection, or through no means of escape being afforded for the moisture from the cluster, the bees being compelled to renew the waste heat by the consumption of extra food, and these hives will be miserably cold and damp, and the bees often distended. In a comparatively dry hive, half an hour's warm sunshine will rouse the bees into activity, and they would be able to take wing and cleanse themselves; but in a cold wet one a whole day's sunshine would scarcely affect the inmates, and consequently they continue damp and unhealthy, and breeding suffers.

In all cases the substitution of dry floor boards for wet ones is recommended, but when the hive itself is wet also, the exchange of floor boards alone will afford but little relief. The better plan will be to wait for a warm day, and transfer the contents of the wet hive to dry one, and contract the brood nest to just those bars which the bees cover. This will conserve the heat, and enable them to keep up the necessary temperature to expel the moisture.

Improper quilts may be the cause of moisture within the hive, and if a quilt is found to be wet it must be removed, and a dry one substituted the first warm day when the bees are flying. Quilts as advertised and supplied by bee-appliance manufacturers are the proper thing, and not a "pile of marine stores" placed on the top, as this prevents the damp from escaping, and becomes a rotten, evil smelling, mouldy mass.

Now is the time to supply the bees with water. The majority of insects either imbibe their food in a liquid state or feed on succulent substances requiring no aqueous dilution. Water, however, is essential to bees before they can rear their young, and in spring, when their stores from the previous autumn are as thick as they could make them by evaporation, they require diluting before making into chyle, and the veterans have to take hazardous flights to the nearest natural source for their supply, and in the cold biting winds we have in March, many of the old bees fail to return, and the population is depleted at a time when it can be least spared. A pan of water with old corks upon it as a foothold for the bees is a simple remedy, and will be a great saving of bee life and labour.—E. E.

Bee-keepers' Supplies.

We have received the catalogue of bee-keepers' supplies (1908) from Mr. E. H. Taylor, Welwyn, Herts, one of the largest, as well as best known, manufacturers of this line of goods in England or elsewhere. Mr. Taylor has an agency, we observe, in Johannesburg, S. A. This issue of the catalogue cancels all previous lists, and it extends to over 80 pages, bearing numerous illustrations.

Schedules Received.

Hawick (N.B.) Horticultural Society; secretary, Mr. W. Oliver, Slitrig Crescent, Hawick. Two shows: August 29 and November 20 and 21.

Wolverhampton Floral Fête; secretary, Mr. William E. Barnett, Snow Hill, Wolverhampton. The twentieth great annual show will be held in the West Park, on July 7, 8 and 9.

Darlington Horticultural Society; secretary, Mr. A. H. Harrow, Priestgate House, Darlington. The spring exhibition takes place on April 29; the Chrysanthemum show on November 18.

The Midland Carnation and Picotee Society; secretary, Mr. T. Humphreys, Botanical Garden, Edgbaston. The eighteenth annual exhibition will be held on August 6 and 7 (subject to alteration).

National Sweet Pea Society; secretary, Mr. Charles H. Curtis, Adelaide Road, Brentford. The eighth exhibition will be held on Friday, July 24, in the R.H.S. hall, Vincent Square, Westminster.

Southampton Royal Horticultural Society; secretary, Mr. C. S. Fuidge, 7, Silverdale Road, Archers Road, Southampton. The Rose show will be held on June 30 and July 1, at the County Cricket Ground; the Carnation and Sweet Pea show takes place on July 28, on the Royal Pier; the Chrysanthemum and fruit show will be held on November 3 and 4 in the Skating Rink, Portland Terrace.



Fruit Culture Under Glass.

POT VINES.—The Vines will now be swelling the berries freely, and will take liberal supplies of liquid manure in a tepid state. Plants bearing a heavy crop will benefit by dressings of Thomson's Vine manure. A liberal temperature should be maintained, and abundance of atmospheric moisture. It frequently happens that a final thinning out of small or badly placed berries is required; and this should be done at once. With pot plants it relieves any unnecessary strain on the Vines. Avoid dryness at the root, as this often is the cause of poor colour and small berries. A little air on the top ventilators at night, as soon as the berries are full-sized, will be beneficial; and if possible avoid overheating the hot water pipes, as this often causes red spider and thrips.

EARLY HOUSES.—The Vines will now be approaching the flowering stage, and careful ventilation will be necessary to avoid cold draughts. In modern houses this is a simple matter, and in mild weather I have found it a good plan to leave slight ventilation at night to carry off excessive moisture. The temperature should be 65deg at night, and 70deg by day in mixed houses, or for Hamburgs, but 5deg higher for Muscats. These latter should be carefully fertilised about midday when the pollen is dry, and a gentle shake of the rods two or three times daily will assist in removing any capsules that adhere to the stigmas. Thinning will soon follow. A word as to quantity. Young Vines are so prolific, that severe thinning-out of bunches is imperative, as by overcropping in a young state disaster is certain later on.

LATER HOUSES.—Where the Vines are breaking well, they require disbudding. This work is less difficult now than with earlier Vines; at the same time it is well to do the work by degrees to select the best growths. Endeavour if possible to fill in any blank spaces, and with old or weak Vines it is a good plan to get some young growths to form rods from the base. This more particularly refers to Vines that have been over-cropped, or when the rods are unsightly, and do not swell freely.

PLANTING NEW VINES.—Now is a good time to plant, and in all cases the borders will have been prepared ere this. Care is required that the roots of the new Vines are evenly spread out, as when taken out of pots they are a close mass. The work will be much easier if the roots are well soaked in water previously. Any damaged roots should be removed, and at the planting, place some good fine soil firmly over the fine roots, and firm as the work proceeds. Water afterwards with tepid water, and later on disbud to the required length.—G. W., Brentford.

The Flower Garden.

HARDY AND HALF-HARDY ANNUALS.—The sowing of seeds of these plants not already done should be taken in hand, both in the open air and in frames. During the last few years the undoubted merits of many of them have been more fully recognised. In fact, so popular are they in many gardens, that a number of beds or borders are entirely devoted to their culture, and termed the annual garden. I have in mind one well-known garden in particular where they have quite superseded the usual run of summer bedding plants, "Geraniums," Begonias, &c. What a saving of space in the houses and frames this is to the gardener in winter. Failure in the past has been largely due to growing the plants too thick; it may seem a waste to keep pulling out so many seedlings, but drastic thinning pays in the long run. Other causes of annuals being "short lived" are too frequent watering in summer, when a mulching of leaf mould, short manure, or other suitable material would be much better, and a careful selection of the kinds grown must be made if the effect is to be of any considerable duration. Borders or beds entirely devoted to annuals are preferable to growing them with other subjects. There are one or two exceptions to this rule, which will be found referred to below. When sowing a border with seeds it should be marked off in irregular portions, each piece being carefully labelled so as to avoid confusion. The arrangement of the colours of the flowers to harmonise is important. Tread the ground firm, and rake it over to obtain a fine level surface. Sow the seeds thinly, and cover with fine soil.

KINDS TO SOW.—Space forbids the giving of a lengthy list of suitable annuals for sowing in the open ground, so a dozen only will be given. Clarkia, Annual Larkspur, Candy-

tuft (Iberis Empress), Phlox Drummondii, Godetia, Linum grandiflorum, Nigella Miss Jekyll, Collinsia bicolor, Portulaca grandiflora, Calendula officinalis, Eschscholtzia californica, and Mignonette. For obvious reasons there are a number which do better when raised in frames, Zinnias, Petunias, Asters, Tagetes, and Helichrysum are examples. A commendable practice is the use of certain hardy annuals in the pleasure grounds, sown amongst newly-planted trees and shrubs, till such time as they occupy all the ground. Poppies, Callistephus hortensis, Collinsia bicolor, and Mignonette, are especially good used in this way. For clothing pillars, or hiding unsightly corners during the summer month in addition to the Sweet Pea, we have the Nasturtium majus, Convolvulus major, Mina lobata, also known as Ipomaea versicolor, and numerous varieties of Gourds with ornamental fruits.—A. O., Kew, Surrey.

The Kitchen Garden.

CELERY.—The first sowing will now be fit to prick off into boxes, which should be done before the plants become crowded. Keep them growing in a little heat. A mild hot-bed is the best place for them, provided the heat is well on the decline, and there is no steam in the frame. Air should be given on all favourable opportunities in order to keep the plants sturdy. More seed should now be sown to provide the main crop. This may be sown in a spent hotbed or in boxes. The sun has now gained some power, and will provide sufficient heat to bring on the seedlings without further trouble.

CAULIFLOWERS.—The earliest of these may now be planted out in a warm sunny border. Of course, those which have been wintered in frames will be the first to be put out, and may need a little protection on cold frosty nights. A few Fir boughs placed round the plants will ward off much frost and cold biting winds. Inverted flower pots may also be used.

GLOBE ARTICHOKEs may, with safety, be planted out. The ground was trenched deeply, and thoroughly enriched some time since, and no further preparation will be necessary. Plant firmly and mulch with half-decayed manure. This will keep off the morning frosts, and keep the drought out later on.

SALSAFY AND SCORZONERA.—Now is the time to sow seeds for supplying roots for winter use. There is not much demand for them; they are, however, asked for on special occasions, and are sometimes in demand in severe weather, and should on these accounts be grown to a limited extent. Sow in rows 15in apart.

TURNIPS.—A small sowing of early Milan Turnips may be made on a warm border. These may not prove to be first-rate for the dining table, but will be most useful for the servants. Often these very early Turnips are stringy and hard, but they are useful for flavouring.

EARLY POTATOES.—An early border can be devoted to these. May Queen, Sharp's Express, Early Snowdrop, Veitch's Ashleaf, are all good and reliable sorts. Extra care should be given to the choice of seed for this early planting. It is quite useless to plant sets with long bleached sprouts on them, as these sprouts will only perish immediately they are placed in the cold soil. Plant tubers which have been well-prepared by being stored in shallow boxes in a very cool, dry room, where ample light could reach them, and which have short, sturdy sprouts of a dark green colour. These will root at once on being put into the soil, and although they will be some time coming through the surface, they will be making considerable progress.

LETTUCES, RADISHES, AND ENDIVE.—Frequent sowings of these should be made, also of Mustard and Cress. Place out plants of the former, which have been raised under glass, near warm wall or other sheltered place. They will all come in useful when the weather becomes warmer. There will then be a demand for salads.

HOEING.—Run the hoe deeply through the soil between all kinds of crops. This will be of the greatest benefit.—A. T., Cirencester.

Trade and Miscellaneous Notes.

The Abol Insecticide.

The Abol (White's Superior) insecticide, which is manufactured by Messrs. E. A. White, Ltd., Hop and fruit growers, Paddock Wood, Kent, is a cheap, safe, and effective concentrated insecticide, non-injurious to the higher animals. A trial sample may be obtained by sending 3d. postage.

Trade Catalogue Received.

Conrad Appel, Darmstadt, Germany.—Forest and Farm Seeds.



MALMAISON CARNATIONS.—Two especially fine flowers of Malmaison Carnations were received on Tuesday afternoon, but no letter or other communication accompanied them.

SUGAR-BEET INDUSTRY (D. C.).—A reply will be forthcoming in our farm page shortly. The question was discussed in our issues of March 8, 1906, p. 225; March 22, 1906, p. 270; and April 5, 1906, p. 305.

ROSE LEAVES (S. C.).—We agree with you that the foliage is "scorched"; at least, the cells become ruptured under the action of the sun and rapid transpiration. It is an inherent frailty that cannot easily be overcome.

PLANTING FLOWER BEDS (W. L.).—We do not undertake to supply designs for planting beds, but only advise on modes of planting that are submitted to us. If you send a clear sketch of the beds and the proposed plan of planting the subject shall have our attention.

CLAY'S FERTILISER (A Young Gardener).—The best evidence of the value of this fertiliser is the fact that it is largely used by nurserymen and the principal growers of plants for the London market. We have tried the manure, and find it an excellent and lasting stimulant for all kinds of plants in pots requiring more support than the soil and clear water affords them. It should be lightly sprinkled on the surface of the pots and watered in. It is equally good for outdoor crops of both flowers and vegetables, and may be used in the same form and quantity as guano.

SOIL (M. R. B.).—The sample of soil is of a vegetable nature, and contains a large amount of grass and other root fibres in both a living and decayed state, mostly the latter, but in this we did not find any "small white grubs or worms," or, indeed, any living member of the animal kingdom. They probably took their departure in transit. In such soil it is usual to find "white worms" (*Enechytraeus* sp.), and not unfrequently so-called "false worms" (*Julus* sp., or millipedes), and also various root mites, including *Rhizoglyphus echinopus* or root mite, all of which are more or less injurious to the roots and root stems of Carnations and other plants. They pass from the dead and decaying organic matter to the living roots, and induce a more or less sickness in them. These pests may usually be expelled by the use of soot in preparing the soil for potting.

DISEASED CARNATIONS (K.).—The example, *Cecilia*, is affected by the Carnation black mould (*Heterosporium echinulatum*), which first appears as large round whitish spots over considerable portions of the leaves. These tufts have a habit of arranging themselves in circles, hence the name of "fairy ring" sometimes given to this fungus. It is one of the worst enemies of the Carnation, and is unusually prevalent this season, both outdoors and under glass. The chief inducement is a close and damp atmosphere, therefore the plants should be given all the light possible, and water should be kept from the foliage, admitting air freely on all favourable occasions. Remove the worst affected leaves and burn them. The fungus may be arrested by spraying with blue water, or eau celeste, made by dissolving four ounces of sulphate of copper in a quart of hot water, and in another vessel dissolving five ounces of carbonate of soda in a similar quantity of hot water, then mix the two solutions, and when all chemical reaction has ceased, add 3½ fluid ounces of liquid ammonia, and dilute to three gallons with soft water. The foliage should be coated with the finest possible film of the "blue water," repeating at intervals of about twelve days once or twice, and then more distantly, or as required.

NAMES OF PLANTS.—Correspondents whose queries are unanswered in the present issue are respectfully requested to consult the following number. (E. M. A.).—Your question as to "choiceness" is rather vague. For what purpose do you mean—the beauty of the plants for decoration, the value of the fronds for cutting, or their rarity? We have placed them in their order of merit for general purposes. 1, *Adiantum cuneatum* var. *grandiceps*; 2, *A. cuneatum* var. *gracillimum*; 5, *A. cuneatum*; 6, *A. cuneatum* var. *mundulum*; 7, *Pteris serrulata* var. *cristata*; 8, *P. cretica* var. *Wimsetti*; 3, *Adiantum capillus-veneris* var. *Mariesi*; 4, *A. formosum*. (J. R. O.).—1, probably *Justicia carnea*; 2, *Streptosolen Jamesoni*; 3, *Euphorbia fulgens* (syn. *E. jacquiniæflora*); 4, *Cestrum elegans*.



More About "The Village and the Landlord."

We are sure that when we wrote an article on Mr. Carpenter's pamphlet we did it in no unfriendly spirit, but felt bound to express our opinions, founded on forty years' practical experience of farming, both large and small. Mr. Greenwood, of Adel, near Leeds, who wrote to the *Journal of Horticulture* of March 5, objecting to our expressions re Mr. Carpenter's pamphlet, seems more disturbed at our advocacy of Tariff Reform than at our other arguments. He addresses his remarks to his "Tariff Reform friend." Well! We have always tried to avoid party politics in this column, but if our opinions when analysed read like Tariff Reform we cannot help it, but shall continue to express those opinions which we have faith in, whatever opprobrious terms may be attached to them.

Mr. Greenwood seems to have misunderstood the last paragraph of our article. We made a long quotation from Mr. Carpenter, which described the hard lot of the small farmers' son who works early and late for a mere pittance, because the farm will not provide anything better.

Mr. Greenwood also commits himself to a quotation from "Socialism and Agriculture," by Richard Higgs, viz., one who farmed forty-seven acres of freehold says, "I brought up a family and nearly worked them to death. They said, 'Father, we are not going to stop here and be worked to death for nothing.' So they went off into shops, and left me and the old woman to struggle along. When they were here they got no wages; now they are ladies and gentlemen."

We will now repeat part of our quotation from Mr. Carpenter: "There is some splendid material here in these classes, neglected by the Nation, and overlaid by a tawdry and cheapjack civilisation."

The object and intention of our previous article was an entire agreement with the above two quotations. Our only difference lies in the matter of remedy. We have preached year in year out about the neglect of agriculture, and have many times called attention to the hard lot of the small farmer and his family. In some parts small farms are highly rented, and the addition of heavy rates make a heavy burden; but we are also acquainted with districts where rents are exceedingly low—7s. 6d., 10s., and up to 20s. per acre for the land, inclusive of the farmhouse and buildings. These farmers are no better off than the others. Their lot is quite as hard and precarious, and where rents are so low suitable repairs are very difficult to obtain from the landlord.

What does Mr. Carpenter mean by a "tawdry and cheapjack civilisation"? To us there appears but one translation, viz., that everything to-day is cheap, but nasty; that our markets are flooded with goods of tinsel, and that therefore the producer of genuine home produce is having a bad time. Therein lies the point in which we said Mr. Carpenter gave himself away. He was arguing for lower rents and more land; but might not land for nothing be included also in a cheapjack civilisation?

In our article we advocated "free trade" in British land, and we are sure that the British people will never allow anything else. By "free trade" in land we mean the right to buy or sell, to let or rent, to the best advantage of both buyer or seller—of landlord or tenant.

Mr. Greenwood twitted us with Tariff Reform proclivities, so we will make another quotation from his friend Mr. Higgs. "Even now, with our limited production, home-grown foods often meet a glutted market, and the grower has sent to him a bill of costs, and loses his produce into the bargain. In this connection it may be mentioned that the constant extension of the operations of the foreign chilled meat companies, and their increasing control of British markets, is a growing menace to individual growers in our Free Trade country, and a great factor in depreciating the value of a great part of our agricultural produce."

We quite agree with all these statements, but if there is any meaning in plain English, the natural conclusion is some scheme of Tariff or Fiscal Reform.

However, any new reformer may argue that one fact remains, and will remain, viz., the law of supply and demand, which, to put it a little differently, means that nothing can

be supplied at less than cost price plus the producer's profit. The Utopian idea as argued by Mr. Higgs is that the land can be made to produce so much more for the benefit of the people, if only the people can obtain the opportunity to do with it as they like.

We have many times been faced with statistics as to the importance of agriculture, and the number of people it employed in this country. It is still a National Industry, and of the greatest importance; and we believe that the farmers of Britain have borne their part in a most heroic manner under very great difficulty and discouragement. The disparity between sale price and cost price has proved to be the ruin of thousands, and will be in the future, whether the land remains in its present hands or in those of the new teachers, so long as prices remain low and rates heavy. Rent is another question. If the land of Britain were nationalised, we doubt whether rents would not be raised rather than lowered.

We note that Mr. Higgs is in favour of devoting all public estates, Crown estates and Ecclesiastical estates, to provide supplies for "the public service, viz., Army horses, Army and Navy food stuffs, timber, and firewood, leather, road metal, wool, building materials, &c., for use in reducing rates and taxes."

As Mr. Higgs says, many of these farms are now in the hands of the public, and devoted to private trading. He evidently is not one of the tenants. We are personally acquainted with many tenants under the Ecclesiastical Commissioners, and it would be nothing more than confiscation in its rudest form to turn these men out of their farms in such an arbitrary manner. Mr. Higgs says that Commissioners of Woods and Forest, and also the Ecclesiastical Commissioners have staffs of trained and experienced men ready to take over the management of farms as they fall in. Will Mr. Higgs tell us how the profits of land so managed compare with the rents paid by private enterprise?

Work on the Home Farm.

We are enjoying exactly that which we have so longed for—a spell of dry March weather. We have a shower or two and a snowstorm to keep us from being too pleased with such happy conditions, yet land work is proceeding merrily, and we shall be quite ready for an early spring, if we get one.

A field of old "seeds" which was ploughed, or rather diggered (with three horses in the digger), at a good depth, has now been ridged out for potatoes, and very satisfactory so far the work seems to be; but we have a doubt about the comparative results in a stern contest between this system and steam cultivation. The men like rather to ridge out across their own ploughing than after a steam cultivator, because the work is easier, but we are almost certain that the resulting crop would be greatly in favour of the cultivator.

With dry overhead conditions, only persistence in use of the drag and harrow has been needed to produce a fine seedbed for barley, and drilling is now very general. After their experience of a late harvest last year, it is but natural that farmers should be drilling early, but there has been little sunshine, and we are afraid the land is yet cold. At any rate we have seen no March dust, and that has always been regarded as the arable farmer's most valuable asset.

We think that the question of temperature of the seedbed has been too much neglected. Thermometers are used for a great number of purposes in connection with agriculture, but we have not yet found a farmer testing the temperature of his land before venturing to drill barley or swedes. We should not expect him to require the same temperature for each, but we believe that the use of a thermometer with average intelligence would often prevent the great mistake of placing good seed into such a damp bed as would require all its energy to recover from.

English Oats for Canada.

The last shipments have been made this week of English Oats to use for seeding purposes in the North-West Provinces of Canada. The Dominion Government made a grant of 100 000 dollars to the farmers in the North-West to enable them to buy seed Oats, as last year's crops were frozen. In return for this gift the farmers will pay a land tax for two years. The Oats were obtained from a leading corn merchant in Mark Lane, and were all purchased in England. This is probably the first time on record that England has sold Oats to Canada.—("Daily Chronicle.")

Agricultural Show at Madrid.

The Board of Agriculture and Fisheries has received, through the Foreign Office, information from the Spanish Government intimating that an agricultural show will be held at Madrid from the 22nd to the 27th May next. It will include (1) classes for foreign breeds of horses, cattle, sheep, and pigs,

and (2) an exhibition of agricultural machinery and implements. Particulars as to the rules, prizes, &c., may be obtained at the offices of the Board of Agriculture and Fisheries, 8, Whitehall Place, S.W. Intending exhibitors should apply to the secretary of the Association General de Ganaderos, 30, calle de las Huertas, Madrid, for forms of entry, which must be received by him before the 30th prox. Preliminary particulars of machinery exhibits must be supplied before the 30th inst. Horses sent to compete from this country will require to be accompanied on return to Great Britain by a certificate of a veterinary surgeon to the effect that he examined the animal immediately before it was embarked, or whilst it was on board the vessel, as the case may be, and that he found that the animal showed no symptom of glanders. Cattle, sheep and pigs could not be returned to this country.—Board of Agriculture and Fisheries, 4, Whitehall Place, S.W., March 17, 1908.

Staffordshire Agriculture.

We are informed that the Staffordshire Education Committee place the services of their agricultural instructor (Mr. John C. Rushton, F.H.A.S.), at the disposal of farmers in the county; and, as far as time permits, he will be willing to give advice upon all matters connected with agriculture, e.g., insect pests, uses of manures and their valuation, feeding stuffs, management of meadow and pasture land, diseases of crops, identification of grasses, weeds, &c.

Family Farming.

À La Française.

"In a bare ploughed field stands a square palisade of zinc plates enclosing about three-quarters of an acre. Behind it the French gardener has wrought what looks a sheer miracle to anyone unacquainted with the system. The ground is all covered either with bell-glasses inverted, known as cloches, or with low frames. Under each bell were five Lettuces; Lettuces were growing round the bells, and other vegetables sown broadcast were coming up everywhere. In many of the frames—4ft square—were thirty Lettuces, a mass of Carrots, and Cauliflowers. The heat within the frames, while it was snowing, was up to 80deg, a heat one would have difficulty in maintaining in a highly-heated and elaborate greenhouse. Within half an acre were more vegetables and fruits, including Melons, which is one of the most paying crops, than a good gardener would get into six or eight acres. Though the garden was only started in November, brisk sales of produce in markets as far off as Birmingham are beginning; and the whole square is a hive of industry. The place is being besieged by intending small-holders in the vicinity, and already is stimulating imitation.

"What is the secret possessed by this little, busy Frenchman, who talked of how he would defy our climate while with his thumb he grooved a lump of putty along the edge of a glass light? The secret is in the cropping and the soil. Every inch of that ground bears at least three crops a year, each of them anticipating the season. It bears Lettuces and Radishes for the new year and through the spring, then Carrots and Cauliflowers, early Tomatoes, and great numbers of Melons by the end of May. The soil will do all this if it is properly made. It is wholly a question of economy of space and of rich, close, intensive culture. The secret—in the shortest phrase—is stable manure, glass, and French industry. The French gardeners regard their soil as gold dust; so valuable is it that in every agreement between gardener and landowner it is laid down that the outgoing tenant may carry away with him his soil to the depth of eighteen inches. That eighteen inches of soil is capital that may bear interest at 100 per cent. upwards. The ground is so precious that they do not allow space for a wheelbarrow path, but carry their loads, and they will not leave a square four inches vacant anywhere.

"The possibilities of a small plot were illustrated in another way. The French gardener and his family lived within the palisade in a cottage containing three big and very comfortable rooms. The cottage from first to last cost less than £70. It was put up in less than three weeks, and a large part of the work was done by women. Indeed, nearly all the sheds and frames in the place were put together by women. There is much detail in the making of lights and frames, in the mats that keep out the frost, in the manufacture of the soil, in the transference of plants from frame to frame; but there are two plain facts: first, that the French small-holders of an acre or two have for years flooded the English markets and supplied the French markets by means of this system; second, that our small-holders can do the same. They can, at any rate, if they are women."—"The Daily Mail."

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Journal of Horticulture.

THURSDAY, APRIL 2, 1908.

Eighteenth Century Gardening. Vegetables.

IN the course of the eighteenth
century some vegetables—e.g.,
Skirrets, dropped out of cultiva-
tion; some were introduced—e.g.,
Seakale and Rhubarb; a few
were improved—e.g., Broccoli and
Cauliflower; and many were culti-
vated increasingly. The physical herbs,
Cardus Benedictus and others, though
still cultivated at the beginning, were
dispensed with long previous to the close of the
century, though not improbably in many country
gardens in out-of-the-way places the old would
not even then have been dispossessed by the new.

It is worthy of note, too, that varieties re-
mained almost without change. There were no
annual novelties in Peas, nothing to startle in
Potatoes, no seedsman's Lettuce better than
another's. The nurseryman was enabled to
print a list of his goods, leaving the year blank,
to be filled as time rolled along, and left it for
his customers' benefit on his annual rounds. I
have had opportunities of seeing a few accounts
of these simple times, and it is really extra-
ordinary how gardeners managed to do on so
little, though it must not be forgotten that it
was customary to save many seeds at home, and
perhaps the great bulk of the garden require-
ments were met in this way. French Beans
were represented by more varieties than any
other vegetable, and to read how a dwarf-
growing variety was welcomed instead of climb-
ing sorts, which required much more labour
to cultivate, makes one reflect upon the peculiar
love gardeners show for anything novel, as is
instanced by the climbing Bean reintroduced
a few years ago. The dwarf-growing Bean
paved the way for forcing this vegetable, which
at first was effected by the aid of ordinary dung
frames, but on the establishment of Pine stoves
these were utilised, and, according to Aber-
crombie (1767), this vegetable was forced all
the winter through. But even early in the

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century the Dwarf Battersea was sown in September on hotbeds, and fruited in January onwards. They were forwarded in the open by starting the seedlings under glass and transplanting, just as we do now. In March, 1721, they sold at 2s. 6d. per dozen!

The Pea formed another important crop, and these two began to be forced early in the century. A method of hastening the earliest out-of-door crop by which, in Scotland, Peas were gathered in May, consisted in sowing the seeds in pots in autumn, and wintering the plants in cold frames, whence in early spring they were transferred and planted at the base of a wall with a warm aspect. A usual way of growing summer crops was to sow in two drills varying in distance, but 2ft apart the outside limit. Up the space, and exactly midway, a row of Pea sticks was inserted, to which the two rows clung. One cannot positively say that any novelty in the way of Peas was introduced, but no doubt some growers had selections which they preferred to the common types.

The Scarlet Runner, which had been cultivated a hundred years previously solely for its flowers, was recommended by Miller for its edible qualities, but its cultivation did not become general till towards the end of the century. The Cauliflower was still a vegetable of the poorest quality, that is, comparing it with present day varieties, but great care was taken in its cultivation, and it reads somewhat strange that a shilling-a-head was considered too low a price to recompense the grower, and that two shillings was reckoned a fair price. "Colliflowers of the right sort were sold in the gardens (market) for five shillings each," in May, 1721, but this price was excessive and abnormal. The season for this vegetable lasted till November. In 1800, Abercrombie names only two sorts, early and late, and that the season extended from May till December. Seeds of Cauliflowers were exported to the Continent, the English strain being superior. James Scot, Turnham Green, enjoyed a reputation for his Cauliflower seed.

Broccoli, though certainly introduced in the seventeenth century, was not cultivated to any extent in the one under review. Bradley names 1718 as the year. He calls it "Sprout Colliflower, or as some call it, the Italian Asparagus." It received that name because one of the kinds yielded sprouts, having the appearance of Asparagus. Bradley mentions three varieties, seeds of which were sold by an Italian, or the seeds were imported from Italy. In 1800 there was only one variety of the White, or Cauliflower, Broccoli; but half a dozen kinds of Sprouting, and these were in season in late autumn, all through winter and spring.

Celery is another vegetable which, though known earlier, became an English vegetable only in the eighteenth century. One may imagine what the produce would be like when it is recorded that 4in to 5in was the space allowed between the plants. The roots and tops were "pruned" previous to planting out. Plants derived from seeds sown under glass in spring were called "forced," and were ready to use by August. There were only two sorts grown when the century closed, but meanwhile its cultivation had become better understood, a greater space being allowed the plants, and rotted manure afforded them as a thing indispensable to success in their culture.

Seakale, as we know it, was hardly known. In its wild state the young growths have been boiled and eaten time out of mind, and Parkinson mentions the leaves as being eaten in 1629. In the middle of the eighteenth century, cultivated, but perhaps not blanched, Seakale was sold in Chichester. Dr. Lettson, of Grove Hill, London, cultivated it in his garden in 1767, and did much to introduce it to general notice. It is not mentioned by Abercrombie in this year, nor does Justice notice it in his works. Gordon, a nurseryman near Edinburgh, however, in 1774, mentions it as a common vegetable, used sometimes in its wild condition, but also cultivated in gardens. The method of blanching was copied from Nature, the heads being covered with a coating of sand 4in thick, and the heads were cut before they pushed quite through.

Turnips were in general cultivation, and a large number of sorts was known. In Scotland, Turnips were customarily eaten raw at breakfast, a fact that is attested by several authorities. Justice names the White Dutch as the variety mostly in use for this purpose, and notes that gardeners vied with each other as to who should have them earliest. The century was well on its way when Turnips were first cultivated in drills, the old custom being to sow the seeds broadcast, and to thin the seedlings to a few inches apart.

The Potato is yet another vegetable which made extraordinary progress. We can hardly imagine to-day how to get along without the Potato at every dinner, and the best of Potatoes too. Yet in the second decade of the century we read of the tubers being set at 6in or 8in apart, and the crop lifted "as we have occasion to use them." The working man did not use them at all, and for a long time he refused to have anything to do with a plant which bore a character which seems to have arrived with it at its introduction, and which, I am inclined to believe that old people still credit it with possessing. However, by the middle of the century, its value as a food,

and not merely a luxury, began to be recognised, and a little later in "Museum Rusticum," and other publications, the claims of the Potato were advocated, and many varieties named and described. By 1770 the varieties were "almost innumerable," and their cultivation well understood. At this time 18in to 24in between the rows, and 18in between the sets, were allowed, and the foot dibber was in vogue. A little later we read of the "curl," a disease which is much dreaded in the South. Many were the reasons assigned for the appearance of this disease, and it is remarkable that over-ripening of tubers was, in connection with "curl," condemned, and immature "seeds" recommended.

Rhubarb as a vegetable was not used till late in the century, or about 1770, when Rhubarbs (Rheum) were "planted by some people in their kitchen gardens to make tarts of the stalks in spring," and the season was extended to meet the Gooseberry, and by forcing to secure it earlier.

The Cucumber became, quite early in the century, one of those subjects which tested the abilities of gardeners to produce. As early as 1717 a short treatise on its cultivation was written, and a few years later, when Thomas Fowler, gardener to Sir Nathaniel Gould, Stoke Newington, produced them without break all the year round, and his master was enabled to present King George a brace on the New Year Day of 1721, the desire to do likewise became strong among his fellows. Fowler grew his Cucumbers in dung frames, and invented a frame specially adapted for winter work. Cucumbers were still grown in the open, and we read of them running up the stems of trees. The supply for London in March, 1721, was ten dozen fruits grown by Gilman, of Brentford. When Pine stoves were introduced, Cucumbers were cultivated therein during winter and early spring, and in the gardens here, at Tynningham, Prestonkirk, N.B., a pane of glass is preserved on which, written by means of a diamond, is the sentence, "Sow'd Cucumber seed for hotthouse, Sep., 1789."

Mushrooms are also a seventeenth century vegetable, but Bradley, in the eighteenth century, seems to have been largely instrumental in popularising their cultivation, and he relates how market gardeners raised them artificially in beds, as the "gardeners do about Paris." Mushrooms sold in 1721, in March, at 8s. and 10s. a basket. Of Asparagus it may be noted that it was well grown, and forced on ordinary hotbeds.—B.

How great is the mystery, how wide the scope for thought that spreads before us in plant embryology and re-production. Those engaged in the pursuit of horticulture are brought so frequently in contact with the phenomenon of the germination of seeds that it becomes commonplace.

The gardener, as he anxiously scrutinises the soil surface of his Begonia or Gloxinia seed-pans, is concerned only with a severely practical issue, and is usually content to leave intricate theorising to others.

Though the shape, size, and external appearance of seeds vary according to the genus or the species of plant by which they are produced, the science of biology brings them all to a common level. The tiny specks of nucleated protoplasm, which holds life in its infinitesimal confines, is absolutely identical in all known organisms; whether found in the Algae spore, the acorn of the forest Oak, the seed of the gigantic Californian conifer, or that of the humble Daisy. And, further, if it were within the province of this journal to deal with matters pertaining to animal structures, we should have no difficulty in quoting the highest authorities to show that there is no fundamental difference in the formal basis of the life of a Cabbage, a lion, or even man! "So far as form is concerned," says Huxley, "plants and animals are not separable; and, in many cases, it is a mere matter of convention whether we call a given organism an animal or a plant. Traced back to its earliest state, the Nettle arises as the man does, in a particle of nucleated protoplasm."

Having seen, then, that the speck of matter which contains the life of all seeds is exactly the same, our senses reel at the thought of the stupendous forces of differentiation and development at work in these untold myriads of microscopic atoms. Although the chemist, by the most careful analysis, can detect no difference in the protoplasm of the timber tree and the lowliest weed, Nature in her secret laboratory makes no mistakes. Never, in any circumstances, does the embryo prove untrue to the inherent tendencies and characteristics derived with its life from the originators of its being. A cross between species or even allied genera may be effected, but the development and distinguishing qualities of the resultant offspring are invariably confined within certain comparatively narrow limits.

It is beyond the power of man to demonstrate the difference in the vital principle of a Cherry stone or a Poppy seed. There are some who say the world will never know these things; of this it is not for me to speak. To quote the finely-expressed sentiments by which Professor Tyndall concluded his famous Belfast address: "Here I touch a theme too great for me to handle, but which will assuredly be handled by the loftiest minds, when you and I, like streaks of morning cloud, shall have melted into the infinite azure of the past."—S.



Vanda suavis pallida.

At the exhibition of the Royal Horticultural Society on March 17, the Orchid Committee awarded a first-class certificate to this variety of *Vanda suavis*, which was shown by Mons. Theodore Pauwels, Meirelbeke, Belgium. The ground colour is white, spotted over with greenish yellow. The inflorescence was very pretty.

Collecting Orchids in Their Native Wilds.

(Continued from page 284.)

As we ascend higher we find the majestic *Cattleya gigas*, and still higher up we have a veritable botanical garden; among others we find here in great profusion *Miltonia vexillaria* (Josephita or pensamiento, as this plant is called here). There are also *Lycastes* in variety, *Sobralias*, *Oncidium*s, *Anguloas*, *Odontoglossums*, and *Rodriguezias* and *Masdevallias* in great varieties along the trail. On the banks and rocks, exposed to the full sun, the pretty *Epidendrum fimbriatum* grows in masses, the effect of which reminds one of our *Phlox subulata* in the spring. Many more could be mentioned, but time will not permit.

From this region we will move southward, going by mule back the entire length of Antioquia, following the highway leading almost exclusively over a high plateau with pretty towns and villages along its course. After twelve to fifteen days' riding we arrive at Cartago in the Cauca, situated at the foot of the Central Cordillera on the western side, and by travelling along southward a day or two more, we are right in the heart of the home of *Cattleya chocoensis*. This *Cattleya*, unlike most of the others, occurs in forests on level land which is very swampy; the trees are as a whole small and stunted, and overgrown with moss. Here, strange to say, I saw the most beautiful sight it has been my fortune to see; in these jungles the plants grew by the thousands; the trees being literally covered with them, and in full bloom (end of August). I particularly remember that I got my mule under a tree, and sitting in the saddle picked a large bunch of flowers; these were particularly fine and large, so different from what we see them under culture where they only half open. The treatment we give this plant under cultivation probably has something to do with this. Where they grow it is very warm and humid. I noticed in the early morning, as soon as the sun reached the forest, a dense mist would rise from the ground and envelop everything; this would gradually disappear as soon as the sun became stronger.

The western slope of this Cordillera is not abundant in orchids. I made explorations all along, going up several rivers and cañons, but with poor results. In one place I found five plants of *Cypripedium candatum* Wallisi growing on one tree. I thought I had found a "bonanza," and the result was three weeks' constant labour and marching from one place to another, but not another plant could be found.

On this same trip I also found a most gorgeous *Masdevallia*, the flowers very much like *M. Veitchii*, but larger and finer in every way; its leaves were long, sword-like, and glaucous in colour, some measuring 24 in. in length. I found about twenty plants of all sizes in one tree, but not another plant anywhere. As misfortune would have it, these plants never reached home alive. Some time after this I rediscovered it a considerable distance farther south-west toward the Pacific, and gathered quite a number of plants, packed them and forwarded them to Buenaventura. There they were retained for nearly two months on account of quarantine regulations, and were consequently lost.

While in the Cauca, by crossing the valley westward, we find on the western Cordillera along the Rio Dagua the chaste *Miltonia Roezli*; in fact, this is its home. True, it is scattered here and there along the course of the Rio Cauca through the Antioquian Mountains, but not in quantity. Here along the Rio Dagua it grows par excellence. The climate is extremely hot and very moist; in fact, it rains pretty nearly every day in the year, and water oozes out of the rocks everywhere. On the ledges and rocks large clumps of *Cypripedium Roezli* may be seen in luxuriance. Leaving the beautiful Cauca valley and its mountains, we will cross the Central Cordillera and steer the course toward the State of Tolima. We will do this by a southern route, instead of crossing the Quindio as is customary, and in this way we will take *Cattleya Trianae* by surprise in its southern haunts. The trail leads over a very inhospitable region, cold and dreary. The forest along the highest part of the road consists of shrubs and stunted trees covered with moss. For long stretches trees and shrubs give

way to grasses and the inseparable companion of the high plateaus, a giant *Gnaphalium*.

Along certain ridges on the trail, in clumps of trees, I noticed *Masdevallia racemosa* in full bloom; these grew in the thickets in semi-darkness, and I am sure that the rays of the sun could never penetrate to their retreats; yet here they flourished unmindful of the cold and dreary atmosphere and darkness. Masses of scarlet and red colours could be seen when peeping through the thickets. Finally we have crossed the paramo, and the descent begins through a labyrinth of gorges and precipices, and at length we are down on the lower foothills on the eastern side of the Central Cordillera, where any moment we can expect to get a glimpse of *Cattleya Trianae*.

In the extreme southern part of Tolima the three chains of Andes are very close to one another, and owing also to the continuous rise of the country from the Caribbean Sea southward, we find here *Cattleya Trianae* scattered everywhere; on the lower mountain sides, in the valleys, in hollows between grassy hills, or, in fact, in any place where there are clumps of trees. The variation of types is very great. Every little valley or stream has its own particular type, but owing to the long distance to a place of shipment these plants will be undisturbed for some time yet, or until everything within easier reach is exhausted. In moving northward we gradually descend,



Vanda suavis pallida.

and the plants disappear from the valleys proper, and follow the mountain sides and its indentations at an elevation of 2,500 ft to 4,500 ft above sea level. It persistently follows the mountain slopes at this elevation for about 400 miles, and possibly more. The gathering, packing, and shipping are more or less the same as with other *Cattleyas*.

Further northward we come to Ibagué, famous for being the first place where *Cattleya Trianae* was collected. At the time I was there very few plants were left in the mountains, but along the Rio Combeima, which flows through Ibagué, I found quite a few plants, but not enough to gather in large quantities. In about one day's riding south-east from Ibagué at a little village called Miraflores, I came across plants in sufficient quantity to gather a good shipment. The varieties were superb, but I found it very difficult to get the plants out, and the only solution consisted in moving the boxes on mules' backs to a small stream that, owing to the rain, had swelled to a considerable size. Here I built small rafts, about 3 ft wide, and long enough to hold nine or ten boxes in single file. Each raft was manned by two men, one at each end, and when everything was ready we cut loose. The stream being full of large boulders, projecting rocks and branches of trees, it was a most perilous journey, and more than once we had close calls, but everything went well, and we reached Rio Chili. From the latter we emerged into Rio Saldaña, which is a very large river. Here we tied all the rafts together, and then floated down toward the Rio Magdalena and on to Honda.

Before leaving this region I want to describe a little of the country around Miraflores. There are no valleys here to any extent, mostly high hills, with depressions between, also narrow openings along the streams. There are also a number of treeless hills covered with grass. On one of these I saw some of the

most beautiful sights. The entire hills from foot to summit were literally covered with *Sobralia violacea* in full bloom, in all shades from pure white to dark lavender. The best time to see this show was in early morning, before the sun became too strong; with the night dew still lingering on the foliage, and with the galaxy of colours on such a large scale, the sun finally rose higher and higher, reflecting the colours in a way impossible for me to describe. Toward midday thousands of flowers began to drop off. This continued throughout the day, but early the next morning there was a new display. At the foot of these hills where the soil was rich, and the plants partly shaded by trees, they attained five to six feet in height. In ascending the hills the plants gradually diminished in height, until at the top they were only a few inches high. There was no difference, however, in the size of the flowers. Almost on the naked rocks would grow the beautiful *Epidendrum ibaguense*, also *Vanilla planifolia*; this latter one always seeking the companionship of a dwarf shrub, to which it would cling, and display its fine dull yellow *Cattleya*-like flowers.

In crossing the Magdalena River going north-east we find *Cattleya gigas Sanderiana* in the State of Cundinamarca. This *Cattleya* is without a doubt the grandest of all the South American *Cattleyas*. The enormous size of the flowers, and as many as ten on a spike, is a sight worth seeing. Unfor-



Crassula arborescens.

tunately this *Cattleya* is not at all plentiful, and its territory is very small, that is to say of the true type, for on the same mountain chains toward Muzo there are quantities of plants, but the type is inferior in every way.

In this same vicinity, growing in somewhat warmer places than *C. gigas Sanderiana*, we find along the streams *C. bogotensis*, although not in quantity; also several *Stanhopeas*, *Oncidium*s, &c. Still further northward in the State of Santander, we find *C. Mendeli*, unfortunately very sparingly. It occurs in several places, but the long transportation is a very serious drawback. In addition to the plants being scarce, the distance to the Magdalena River is considerable, and I doubt very much whether this plant has ever paid to extract. In this same State, at high altitudes, *Odontoglossum Pescatorei* occurs; also *Masdevallias*, such as *M. Veitchi*, *M. Harryana*, &c. Also the pretty *Oncidium cucullatum*, *Anguloas*, and many more.

A WONDERFUL, DANGEROUS REGION.

From Santander I will take you across the Eastern Cordillera to Los Llanos de Cazanare. From where we are now, say in Malaga, we can cross the Cordillera in a straight line, but it will take us at least fifteen days, if all goes well, before we can set foot on the eastern side of the mountain. Four or five days of this time will have to be spent tramping eternal snow, so we will take a route farther south, where the elements are more favourable. The trails, however, are abominable, and the journey a hard one, so we will simply place ourselves on the other side in the immense and grand region of Cazanare. This region where we now are is without the slightest doubt the most wonderful on this entire hemisphere, if not in the world. Everything is here on such a gigantic scale as to inspire terror in man. Its flora is marvellous; plants occurring in other parts of the country are as pygmies compared to those found here; and even the animals are much larger than in the other parts.

There are giant tapirs, pumas and leopards in the forests; the rivers are full of fish, alligators, rayfish, electric eels, &c.; and millions of waterfowl, &c. Here it is we find *Cattleya Schröderi* in all its glory. The first plants were taken out of this region in 1893; so it is, comparatively speaking, a virgin region, and will remain so for some time for many reasons. *C. Schröderi* is to-day the most abundant of all the Colombian *Cattleyas*. It is found from about the third degree northern latitude up to about the seventh degree, but, like *C. Trianae*, it runs along the lower edges of the woods. The plants are of extraordinary vigour and size, and the varieties are superb, compared with those of the older district of Villa Vicencio, where plants are still gathered.—(JOHN E. LAGER, Summit, New Jersey, in "Transactions of Massachusetts Horticultural Society.") (To be continued.)

Calanthes.

The subject chosen for this week's article is one worthy of consideration by all gardeners who have either to supply cut blooms, plants for the table and house decoration, or maintain a display in the conservatory. *Calanthes* may be had in flower from November till February, and even during March, by growing the beautiful *C. Regnieri*. They are often successfully cultivated where no special arrangements are made, or exceptional treatment given; in fact, the man in charge probably has never been under a skilled orchid grower, but all the same, he grows his plants well. This should encourage others to take up this section of orchids, and I feel sure anyone would be satisfied by the returns from such a small outlay.

The best time to purchase bulbs is from January to March, when they are in a dormant condition, and our leading orchid firms usually supply a stock free from the "spot" disease, which is important. So far as the foliage is concerned, it is a matter of correct cultural details to keep the plants free of "spot." One of the easiest to grow is *C. Veitchi*; its rose coloured flowers and graceful arching sprays are always admired. Then we have *C. vestita*, with its several varieties, especially *rubro-oculata* and *luteo-oculata*; while the chaste pure white *C. Harrisii* should also be mentioned. For those who live near large towns I recommend *C. Regnieri*, which has white sepals and petals, and a rose-pink lip. This variety blooms later in the season, after the fogs have left us. When the bulbs are received they must remain in their pots, or be placed in a box with a portion of silver sand around the base, till growth is 3in or 4in long and new roots begin to form. At this stage they can be potted up in a mixture of the best fibrous loam procurable, which should constitute one half of the bulk, with one-fourth lumpy peat, one-fourth chopped sphagnum moss, and a few nodules of charcoal or crushed crocks added. This ought to be thoroughly mixed, and be placed where it can get warm a few days before it is required.

Now as to the size of the receptacle (which must be drained one-fourth of its depth). This should be decided according to the size of the bulb. For an ordinary one, with one "break," a 5in or 6in pot is ample; but if specimens are wanted, then four to five bulbs may be arranged together in a fairly deep pan 10in in diameter; but in such a way that the growth will be equal distances apart, also allowing sufficient space for the new bulb to develop. The *vestita* group is particularly adapted for this method, and if the plants are suspended when in flower, a pleasing effect is produced, because the spikes have a natural tendency to droop.

After repotting they are placed in a light position near the glass in the Dendrobium house, Melon pit, or any other structure where the requisite heat can be commanded, which should vary from 65deg to 70deg F. at night, rising 10deg or more through the middle of the day. For the first few weeks very little direct watering is needed; but the surroundings must be kept moist by spraying between the pots twice each day, and sprinkling the floors with a rose can.

When the roots have taken possession of the compost more water can be given, and directly the new bulbs are formed a weak solution of farmyard liquid manure may be applied twice a week till flower scapes are visible. During active growth *Calanthes* must never suffer from drought; and a little top ventilation ought to be provided when the elements are favourable. If the house is kept too close, with a low temperature, the dreaded "spot" often appears. Water is needed till the spikes are cut off, but in less quantities, owing to the bulb being complete and the declining days; but when in flower do not expose the plants to chilly draughts, or the next year's growth will suffer in consequence. In the resting period the bulbs may be left in their receptacles, and stored on a shelf when the temperature does not fall below 55deg F., and kept on the dry side till signs of life are again apparent.—T. ANSTISS.

Succulent Plants.

Crassulas.

The plant which we figure portrays the characteristics of its kind very nicely. The leaves are fleshy, and are covered with a bright waxy "skin"; and they are arranged in close succession upon the stems. *Crassula arborescens* is one of the most distinctive members of the genus. No one would guess from its general vegetative appearance that it had any connection with *C. pallida*, which we recently figured (September 26, 1907). The stems become much branched and contortious, and scarred. The leaves are roundish, 1½ in in diameter, smooth, fleshy, and of a metallic brownish colour. Then there is the equally peculiar and very distinctive *C. lycopodioides*, named because of its close resemblance to *Lycopodium*. There is one also called *C. pseudo-lycopodioides*. *C. falcata* has flat grey leaves set obliquely, and bears terminal clusters of crimson flowers. This plant is grown as a floral subject in gardens as *Roea falcata*. Every apprentice gardener, too, is familiar with *Crassula coccinea*; if not by that name, probably as *Kalosanthes coccinea*—with remarkably pretty flowers. *C. conjuncta* has somewhat spoon-shaped, mucronate leaves arranged closely after one another on the stem, like beads or sequins. *C. rosularis* resembles a *Sempervivum*, and *C. Bolusi* takes after a dwarf *Sedum*, growing in tufts, reaching an inch high, and being smothered with purplish-white flowers. One sees, therefore, even from this small collection, that there is very considerable variation, and one can pity the poor botanists whose task it was originally to dissect and classify them.—J. H.

Notices of Books.

CASSELL'S ABC OF GARDENING, an illustrated Encyclopædia of Practical Horticulture, by Walter P. Wright. Cassell and Co., Ltd., London; 3s. 6d. net.

Mr. Wright's books are invariably close-packed with information upon the subject of gardening. He also employs drawings very liberally to illustrate, and leaves no doubt as to his meaning. He may be said to have been the pioneer of the "practical pictorial" handbook series—a type of technical book now being copied.

The present volume is likely to be very serviceable, not only to amateur beginners, but also to many professionals, especially those who feel they cannot afford a more expensive reference work. It is very much condensed; that is, the contents are, but the number of genera listed in the pages is extensive. The names of species and varieties, however, are mainly omitted, for the intention of the little volume is to provide a summary of the chief cultural requirements of the subjects therein named. The publishers are wise, we think, in not charging more than 3s. 6d. Ridiculously high prices are sometimes charged by publishers for quite insignificant books. A feature of the present work is the lists of good and commendable varieties of popular plants—as Sweet Peas, Roses, Tulips, &c., as an appendix. A less heavy paper, we think, would have been better.

A PRACTICAL GUIDE TO COTTAGE AND ALLOTMENT GARDENING, by J. Weathers, with sixty-six Illustrations and Examination Questions on Cottage Gardening. Longmans, Green and Co., 39, Paternoster Row, London; price 2s. 6d.

A first-rate book, thoroughly well "done," and cheap at the price. It has come at the right moment, too, and is intended also to suit the requirements of that now large class of teachers who have to guide their elder boys in the operations of gardening as a part of the practical lessons now being taught in rural and urban elementary schools. Mr. Weathers has something to say about "those who are to teach the subject." "Not a few," he says, "who are interested in educational affairs are under the impression 'that anyone can be a gardener,' and consequently that 'anyone' can teach it. This is a dangerous delusion, likely to do an immense amount of harm." Our author very rightly argues for qualified practical teachers and inspectors, for "if the schools were grouped, and the lessons arranged at suitable times, this would permit one man to do several schools in the course of a week during the season."

As we cannot systematically review the book, we will name the sections or chapters by way of illustrating its contents. These begin with: Where to make a garden (pathways, edges, implements); school gardening (size, cost, tools); cottage gardening (laying out, cost, lawns, &c.); allotments (making an allotment pay, and cropping an allotment of ten square poles); the soil, hotbeds, fruit garden, flower borders, vegetable garden, rockery, fernery, window gardening, Roses, trees and shrubs, plants for rooms, pests and diseases, and calendarial notes for the months of the year.

The small holder is likely to find some useful hints herein, equally with those other parties whom we have referred to.

NOTES



Floral Decorating.

Our esteemed correspondent, "T. M. E.," is at present delivering a course of lectures, with practical demonstrations, on "Floral Decorating" to the garden students at the Royal Botanic Gardens, Edinburgh.

Torquay Gardeners.

On Friday last, the Torquay Gardeners brought to a close their winter session. There was a good attendance, and the meeting was presided over by Mr. W. A. Masterman (vice-president). Mr. G. Goddard, an expert grower, said fruit growing was purely an art, but an art in the following up of which a good deal of hard work is naturally entailed. The phases of the subject more particularly dealt with were the various methods of training trees, winter and summer pruning, also root-pruning. The chairman, and Messrs. R. W. Hodder, G. Clements, G. French, A. Pidgeon, and G. Lee took part in the capital discussion which followed the paper.

"Arbor Day" at Blackley.

"Arbor Day" was celebrated at Blackley on Saturday last. Twenty-one trees were planted by the scholars of the Blackley Municipal School in the streets adjacent to the new school. The first tree planted was a fine Elm, presented by Mr. E. D. Till, of Eynsford, Kent, the originator of "Arbor Day" in England. A large concourse of people (says "The Manchester Courier") assembled for the opening ceremony, which was presided over by Alderman Birkbeck, who was supported by Councillor Bennett and Dr. Skinner and others. The residents had generously responded to an appeal made by Mr. B. Wilde, so that the trees were paid for out of money collected by the children, and the tree-guards and stakes were the gifts of local blacksmiths and joiners. This is a distinct improvement on last year, when six trees were planted, and the keen public interest in the movement promises well for the removal of some of the eye-sores and ugliness from this corner of the city.

Rochford's.

As a striking instance of a colossal business being worked up from small beginnings in a comparatively short space of time, the wonderful greenhouse plant of the Rochford's is worthy of notice. In England all such places are termed nurseries, and the full title of the firm is Thos. Rochford and Sons, Ltd., Turnford Hall Nurseries. They are situate at Broxbourne, seventeen miles from London. The well-known and genial Thos. Rochford, who died some six years ago at a comparatively early age, was the real founder of the business as it at present stands, though it had its small beginning at Tottenham, when he and his father, Michael Rochford, grew especially good Pines and Grapes. A ton of Grapes in those days was thought a big lot, but now this firm alone grows nearly 100 tons under glass annually. Prices in those days ranged anywhere from 15s. to 20s. per pound, while to-day 2s. 6d. is a fair average price, though, of course, higher prices are paid for best quality fruit. It is worthy of note, too, that in the old days the Grapes grown at Tottenham were carried on the men's heads, thence to the London market, a distance of about six miles. To-day large four-horse vans, as large as furniture vans, carry the produce. The Turnford Hall Nurseries and the ground around them secured for extension cover an area of 100 acres. There are in all 285 greenhouses, one of the largest of these, a palm house, being 300ft long, 50ft wide, and 26ft to the roof apex. In this particular house are many palms, ranging in value from 20s. to £50 each. The actual area of glass in this immense establishment has been variously estimated in America, and all kinds of guesses have been made. It will interest our readers to know that the actual size is just under a million and a quarter square feet, 1,224,119 to be exact. This is the first time these figures have been published, and they are correct. They represent the actual area covered.—("American Florist.")

Bulb Show in Perth.

A highly successful show of bulbs was held in the City Hall, Perth, the other day. The show was established a few years ago to encourage the cultivation of flowers by the school children, and this year's show was the best of the series. There were in all about 4,000 entries, an increase of 1,000 over last year. The quality of the exhibits was generally of a high order, and much difficulty was experienced by the judges in awarding some of the prizes. Sheriff Sym presided over the opening ceremony, which was performed by Miss Drummond, Megginch.

Edinburgh Chrysanthemum Show.

The prize-list for this important exhibition, which takes place this year on the 19th of November and two following days, has just been issued. It is on the usual liberal basis—the prize-money amounting to about £450, besides cups, &c. The council stick rigidly to vases for bloom showing. The prize-money for 'Mums amounts to about £200; floral decorative prizes, £60; plants, £105; fruit, £80; and vegetables, £40. Collections of fruit and vegetables receive liberal encouragement. Copies of the prize-list may be had from Mr. Richardson, secretary, 19, Waverley Market, Edinburgh.

New Jersey's Educational Exactions.

About the only things that teachers in the elementary grades of the public schools of New Jersey are not required to know are how far it is between two rows of Apple trees, and was the hen first or the egg? says the "New York Herald." At least that is what some of those who took the February examination declare, and they offer as proof a list of the questions submitted to them. They assert that they were never informed that they would be asked to explain the inner workings of high finance; that they would be questioned regarding the best methods of lengthening the legs of a table, or that they would be interrogated as to the value of various kinds of fertiliser. Here are some of the genuine questions asked: "What amount of plant food per acre would sixty bushels of shelled corn take from the soil?" "Give three active enemies of fruit trees." "Give a typical rotation of crops in your locality." "Draw a plan for a small kitchen garden, designating the plants." "What is meant by commercial fertiliser?" Some of the applicants for teachers' positions prepared a list of questions which, they told the examiners, should by all means be included in next year's papers. Persons who cannot answer them, they averred, are in no way fitted to teach youthful minds. A few samples of these questions are: "What soil is best for rubber plants?" "Will a squab squawk if the toast is hot?" "How long does it take to travel between two points?" "If an owl can see best at night what animal can see farthest in the daytime?" "Where is my wandering boy to-night?" How many of the teachers passed no one has dared to guess. Few of the applicants had ever been heads of financial corporations, and the only agricultural experience any of them had had was to "hook" Water-melons or water the plants.

Bristol Gardeners' Association.

A well-attended meeting was held on March 26 at St. John's Parish Rooms, presided over by W. E. Budgett, Esq. Mr. Budgett spoke feelingly about the sad death of Mr. Orchard, late gardener to Arthur Baker, Esq., Henbury Hill. He proposed that the secretary write to Mrs. Orchard and express the sincere sorrow of the members in this her time of trouble. Mr. J. C. House seconded, and had the support of all members present. The subject for the evening was "Weeds," by Messrs. Garnish and Jennings. Mr. Garnish opened the subject, but found trouble in what to say, and what to leave out; he explained that there were tall, dwarf, creeping, climbing, perennial, and annual weeds. In our herbaceous border, the speaker said, if by neglecting some plants they were no better than weeds; he concluded by saying that weeds were a blessing, as they caused labour. Mr. Jennings spoke on weeds in their various aspects, such as unsightly weeds in paths, but recommended weed killer. He found an old wall a very prolific place for Dandelions, &c., but advised spraying the wall, as by so doing it would save trouble, as seed blew a long way when ripe. The speaker found it hard work in keeping a lawn clean, but advised when possible to lift the turf and hand weed it. Mr. Budgett closed the discussion, and was followed by Messrs.

Clark, Lee, Curtis, Binfield, Shaddick, and House. For a lady's spray and gentleman's button-hole, for under-gardeners only (prize by Mr. J. Griffin, Luda Works), Mr. Grieve first, Mr. Coombes second, Mr. Attewell third, Mr. Anstey extra. Certificates were awarded to Mr. Holt for four pots of Mignonette; Mr. Curtis for *Dendrobium fimbriatum oculatum*; and to Mr. Shaddick for *Dendrobium nobile*.—J. Scott, Downside Gardens, Stoke Bishop.

Guildford (Surrey) Gardeners' Association.

At a meeting of this association, held on Tuesday, March 24, Mr. W. Hogden presiding over an attendance of sixty-one members, Mr. J. Lock, the well-known exhibitor, of Oatlands Lodge, Weybridge, gave a very able and practical lecture on "Fruit Culture Under Glass." Pines, Melons, Peaches, Nectarines, and Grapes were the subjects dealt with. A capital discussion followed. A very hearty vote of thanks was passed. A first-class certificate of merit was awarded to Mr. Mitchelson, gardener to F. H. Cook, Esq., for an excellent dish of Royal Sovereign Strawberry.—J. G.

Dundee Children's Bulb Show.

This annual event, which continues to grow in favour with the children of Dundee since it was begun a few years ago on the initiative of Mrs. Carlaw Martin, a member of the Dundee School Board and the wife of Dr. Carlaw Martin, LL.D., the editor of the "Dundee Advertiser," took place on the 14th ult. There were no fewer than 2,600 entries, and the Drill Hall was exceedingly gay with the many flowers staged for the prizes. Many of the exhibits were remarkably good, and showed that the children and their parents had taken a real interest in their cultivation. The opening ceremony was performed by Lady Steel, Edinburgh, Lord Provost Longair presiding.

A Good Home-made Cement.

Something which the suburbanite frequently needs in small quantities, but which he rarely has on hand, is a good, quick-setting cement for uniting small fragments of iron, setting wooden handles into tools, and a hundred and one other small jobs. A very good cement which will answer almost any requirement may be made by dissolving common Orange shellac in enough alcohol to form a paste. This may be kept on hand in a tightly corked bottle with a wide mouth—tightly corked, or the alcohol will evaporate. When it is desired to use the cement, place as much as it is desired to use in any small tin vessel and set the paste on fire. The alcohol will soon burn out, and the cement should then be quickly used, before it has time to cool. This cement is very strong, and is water-proof.—("Suburban Life.")

Spring in the Isle of Wight.

Spring in the Isle of Wight (says the "Daily Mail") has surpassed all recent records. Even on the north side of the island the Rhododendrons are in some gardens a blaze of colour, and have been for some time, and the *Pirus japonica* is almost as brilliant. Daffodils, Anemones, and Jonquils, which are only in bud in Hertfordshire, are already past their best, but with Primroses and Polyanthus and Celandine make a carpet of colour in wood and garden. Periwinkles are out early. The Magnolia is on the point of bursting into flower, and even the wild Garlic and Bluebells show signs of flower. The grass has grown so strong on the lawns that scythe is necessary to cut it. In the coppices the wild Plum is in full leaf, and the Willow bloom and the hanging pink flowers of the wild Currant are at their best. One or two portents in bird life have been observed along the coast. By Ryde the rippling whistle of the whimbrel is heard every day—a very unseasonable appearance. The chiff-chaff and Willow warbler have been heard, robins and thrushes are busy building, and the rooks have begun to lay. The more ambitious vegetable gardens are a wonderful sight. Peas, Beans, and Potatoes are well above the soil, Gooseberry bushes are in full leaf, and the flower buds of the Pear trees half-way open. One misses altogether in some places the usual hum of bees. Last year's disease played havoc with the strongest hives. The combs of bees left under roofs and other impenetrable places were last year seized and occupied by wasps, and it is remarkable that many queen wasps have already made their appearance, as well as a fair number of hibernated butterflies.

Begonia heracleifolia.

This is one of the prettiest of tropical Begonias, regarded either for its foliage or pretty panicles of bloom. The palmate leaves are bronzy-green, with hairy, toothed-margins. The flowers are rose-coloured or deep pink, borne half a foot to 9in above the foliage, and the plants are in flower at the present season of the year. There are several varieties and cross-bred forms, all more or less good.

The Midland Daffodil Society.

Mr. Herbert Smith, hon. secretary of this society, writing from Tenby Street, Birmingham, says:—"Our exhibition will be held on Thursday and Friday, April 23 and 24. In the present schedule we have added several classes for the newer kinds of Daffodils; in fact, we make a very great feature of seedlings, of which we get together the finest display of any show in the Kingdom. We are offering a handsome silver challenge bowl as a memorial to the late Rev. S. E. Bourne, as well as ten other silver bowls and vases, so that altogether we expect a splendid exhibition. A great many of your readers are interested in our society, and information of this sort would be very helpful to all concerned. I enclose you a copy of our last report, which contains the schedule for the coming show, and shall be pleased to send a copy to any of your readers."

The late Mr. Robert B. Lenchars.

Mr. Robt. B. Lenchars, founder of the Burns memorial fund and first president of the Burns memorial association, died March 3 at his home in Brookline, Mass., U.S.A., following a pro'onged illness. He was eighty-five years old, and had lived in Boston and its vicinity about fifty years. Mr. Lenchars was at one time an expert landscape gardener, and following his retirement about twenty-five years ago became well known for his prolific writings on matters pertaining to horticulture, floriculture and arboriculture. In his earlier days Mr. Lenchars laid out a large number of private parks in New York state. His services were in great demand, and he frequently worked for prominent families along the Hudson river. He served his apprenticeship with his father in Scotland, was later bound out to another gardener, and still later did work on some of the finest estates in England.

Fruit Growing in Warwickshire.

Owing to the success of the demonstrational and experimental fruit plot established by the Education Committee of the Warwickshire County Council three years ago, another acre of land has recently been planted with fruit trees. This is mainly devoted to the cultivation of Plums, Pears, Raspberries, and Currants. In the future this plot should be specially interesting, because some of Luther Burbank's latest novelties have been included in the large collection of Plums. One is named the "Santa Rosa" Plum; another the "Rutland Plumcot." The latter is said to be the result of a cross between the Plum and Apricot, and the trees have been imported from California. These new productions are considered in America to be a great advance upon older varieties, and should they succeed in this country, may prove valuable additions to our list of handsome Plums of high quality.

Market Gardening.

Fortunes are being made by men who anticipate the seasons. Sussex for the first of the early Strawberries; Kent for the next earliest; Kent again for the best Tomatoes; Middlesex for early salads—that, says the "Evening Standard," is how the calendar for Mayfair is made up. Naturally the returns are not all profit. Though Strawberries are worth little under a sovereign a pound retail to-day, the return to the man who grows them is not such as to make the season a good one for him. Some of the most famous nurseries in Kent have lost from a third to half their stock, all owing to the rains of last autumn. Strawberries in pots which were standing out on richer or low-lying land contracted a disease such as has not previously been known. The result is showing itself now that the plants are being forced; under the base of the crown in which the fruit-truss forms there is a deep brown canker which prevents the fruit from developing. The losses from this cause will be very heavy, be the prices in the market good or bad.



Crocuses.

Although often used in forming designs, or as an edging to beds or borders, Crocuses are seen at their best when naturalised. If this method is adopted, a large quantity should be procured, and may be mixed, or the colours can be kept separate. In the latter case the bulbs should be planted in large batches. Each batch of one colour will be found to be very effective if grown round the bases of trees. Whether planted in open breadths of grass or beneath trees the bulbs should be thrown about thickly. If a large piece of ground is to be covered, the turf should have been previously pared back; but where it is intended to have a few in small batches, the bulbs may be dibbled in, filling the holes with fine soil. There is a tendency both by private and public gardeners to make out designs and lettering with Crocuses, Narcissi, or other bulbs in the open. However interesting this style may appear in beds, it is quite out of place on the grass. The following species and varieties are recommended: Crocuses biflorus,



Begonia heracleifolia.

aureus, aureus sulphureus concolor, Leedsii, versicolor, reticulatus, dark yellow; dalmaticus, pure white; Mont Blanc, David Rizzio, purpurea grandiflora, and argus. Autumn flowering: C.'s sativus, longiflorus, asturicus, and var. atropurpureus; cilicicus, caspius, and speciosus, a beautiful blue.—A. J. HARTLESS.

Entomological Notes.

Spring Wood-borers.

Some of the worst foes of our trees and plants carry on their destructive work unseen and unheard. We know little about them until we come upon them accidentally, or discover the results of their activity. The life led by many of these insects is much in their favour. They are seldom interfered with by mankind, and they are generally secure from birds; also from most parasitic enemies. Growth is often slow amongst the wood-boring caterpillars or grubs, and it is not unusual for them to feed during two years, or even three; hence the mischief they cause is prolonged.

In habit they vary, no doubt, and an interesting question is, What the majority of them do through the winter months? Some think they either sleep, or only eat occasionally when the weather is rather mild. The cold and damp of winter have an influence upon living wood, we may be sure, lowering its temperature. This chill necessarily affects the twigs and branches of a tree much more than its trunk, so that caterpillars deep lodged in wood may defy the winter. Still, the fact that

the life of many of them exceeds a year is suggestive of slow growth and times of repose. However, this is certain, that sleepers and non-sleepers are aroused by the rising of the sap when Nature is preparing for new foliage and flowers.

Just now, as the Currant bushes are coming on, we are reminded of their internal enemy, the little caterpillar of the Currant clearwing moth, a species in a curious family of moths, which much resemble flies. This insect is *Sesia tipuliformis*, and the moth is on the wing during June, delighting in the sunshine. It has a slender body, which is glossy black, belted with yellow. In winter the caterpillar is generally lodged near a node on the bush. It does not haunt the Gooseberry, but all the Currants, especially the Black. The moth appears every year, so that there are caterpillars of two broods to be found on most bushes. It is seldom a bush is killed by them, but twigs and branches often perish. Children are amused at the work of catching the moths, which is a good way of keeping their numbers down; not that they are very easy to secure, as they skip actively from leaf to leaf. Closely allied to this species is another orchard enemy, the red-belted clearwing, *S. myopiformis*, also rather common. The late Edward Newman thought he had detected its caterpillar feeding all the year round. It occurs both in Pear and Apple wood. We find it in the smaller branches of Apple, but on the Pear it inhabits the trunk. A large number have been taken out of a smallish block of wood, and at last the insect causes decay.

Though the colonies are sometimes numerous in the places where the moth chiefly occurs, the red-tipped clearwing (*S. formiceformis*) is apt to escape notice, or if observed, is not regarded as a doer of mischief to Osiers. But in some seasons its caterpillars do much harm in the plantations of Osiers grown for basket-making. The red tip of the wings is very distinctive. The caterpillar, like others of the tribe, is pale, muscular, and thin. It is supposed to feed all through the year, favoured perhaps by the softness of the pith in the Sallow and Willow tribe; no doubt it lives upon several species. The moth delights in the July sunshine. Some clearwings are shy; the yellow-legged species (*S. cynipiformis*), which is rather brightly coloured, settles on the trunks of trees or amongst the herbage at the foot. Its caterpillar lives under the bark of Oak and Elm, being full-fed in spring. Hidden in the trunks of Poplars or Aspens, the hornet clearwing, a larger species, *S. apiformis*, is feeding again after a rest, and shortly will make its cocoon of chips joined with silk. The form and the banded body of the moth are so suggestive of the hornet as to be a protection, one would think, from some enemies.

Then our persistent tree destroyer, the caterpillar of the goat moth (*Coccus ligniperda*), is just now arousing to new activity after his winter sleep. We have no doubt that he does sleep, for in the operations of lopping and felling he has been repeatedly dislodged from his snug winter nest. One peculiar fact in this caterpillar's history is that about May or June a specimen may be seen crawling on the ground, having left its parent tree to take a journey to some other—a risky proceeding. However, the goat caterpillar is armed with trenchant jaws, which make it well able to fight insect enemies, and birds might be guarded off by its powerful odour. It is stated to have strength sufficient to penetrate thin plates of soft metal; certainly it can push up the lid of a canister with its head. The peculiar odour is often perceptible before we come close to a much infested trunk, which arises from a fluid the caterpillar secretes. I know a gentleman who does not at all object to its smell; but there is no accounting for tastes. The period of larval life varies; not less than two years, it may be three or even four. Entomologists have discovered that the female moth lays a large number of eggs—500 or 600 it is thought; these are inserted into cracks by an ovipositor. Hence it is no wonder the insect is abundant, and would be still more plentiful if it were not infested with a parasitic fly. This finds its way into the trees by some opening or another, and departs after placing one or more eggs upon each caterpillar. The victim may live to the chrysalis stage, but then dies.

Common as the goat moth is, both fruit growers and gardeners generally have less acquaintance with it than they have with the leopard moth and caterpillar, *Zeuzera Esculi*. This may be caused by the fact that though the goat caterpillar attacks various trees, it chiefly infests the Elm, Oak, and Willow. Also the leopard caterpillar shows a preference for the branches of trees, occurring often upon fruit trees. Having its specific name from the Horse Chestnut, it is, however, seldom found upon that tree. It is fond of the Ash, and has been found guilty of killing many saplings that were being grown for Hop poles. Westwood and Newman, both men of authority, do not think the insect is generally hurtful to fruit trees. Miss Ormerod, on the other hand, argues that the boring operations must lower the vitality, even if the crop is not affected at first. There are intervals certainly when the caterpillar reposes, its life lasting nearly two years. In its black and white markings this resembles the spotted moth, which comes out between June and August. Let us give the

sparrow a good word when we can, and it certainly devours these moths eagerly.

Then we have two species of horned sawflies or tree wasps (*Sirex gigas* and *S. juvenicus*) which occur throughout Britain, their larvæ living in the solid wood of Firs. One is larger and handsomer than the other, but both have a wasp-like or hornet-like aspect, and are called horned because the females have a long egg-placer, by which the eggs are placed deepish in the wood. They principally attack various Firs, but it is surmised those only that are unhealthy or decaying. As a wood-borer, the larvæ display strength and skill. The powerful jaws are provided with sharp teeth, enabling it to make long galleries. How long the larval state lasts is uncertain. The chrysalis may be formed in the autumn, or the larva, ceasing to eat, may repose then, to become full-fed in the spring. We have several well-authenticated instances of these sawflies emerging from timber which had been used in building, showing that the chrysalis state is of some duration. Rather waspish in appearance is the pretty beetle called *Clytus avictis*, yellow and black, very active, and fond of flowers. The larva lives on wood, often upon pollard Oaks.

Oak and Willow furnish the favourite food of our largest British beetle, the well-known stag-horn (*Lucanus cervus*). In a few counties it is known popularly as the "horn-bug." Its showy horns are harmless, yet it can bite effectively with the mandibles if offended, especially the female insect. As a larva or grub its growth is slow, interrupted, no doubt, by winter rests, and is believed to extend at least to four years. If it has a partiality for decayed or rotten wood, it is quite capable of injuring wood that is growing, and sometimes makes its tunnels deep in the roots of trees. This is a species much more common in the South of Britain than in the North.—ENTOMOLOGIST.

Market Gardening Notes.

POT ROSES FOR COVENT GARDEN.

This day, calling upon C. T. Kirby, of North Finchley, acknowledged to be one of the best growers in the market, I was pleased to see such a good show for the coming Easter trade. The first house of 1,500 Roses in 40's consists of Général Jacquiminot, Mrs. John Laing, and Mrs. R. G. Sharman Crawford. The plants are on inverted pots, and are carrying up to eight or nine good buds. Another house has chiefly *La France*, h. t., with Duke of Connaught on the side benches. The third house, still later, is breaking well, and in a month the plants will be very good. Sulphur was well in evidence, the change from Tuesday's bright sunshine to the wet days quickly leaving its mark. They receive a weekly dressing of chemical manure, with occasional doses of soot. One house is filled with trained Dorothy Perkins in 24's, a good sight. I might state that the Roses are potted up early in October, placing them on a warm hotbed in the open, but protected from the north wind. They are introduced into the houses with the advent of the new year.

OVERHEAD HOT-WATER HEATING.

This system, though by no means new, as H. Cannell and Sons have, I know, had it in work for thirty or more years, but it is still very seldom used on a large scale. This week, when calling upon R. H. Bath, Ltd., Wisbech, I saw the system on a fairly large scale. They have two span houses, 120ft by 40ft wide, being economically treated, one for Carnation growing, the other for Tomatoes. Four over-head flow pipes, all 4in, running into double the quantity of returns on the ground, are used. An upright main is inside the house, about 9ft high, branching off into the flows, which fall from this point about 18in at the far end of the house. Each flow has a throttle valve to regulate the heat. Under this system the returns are all about of the same heat as the flows. The top-heat is very apparent when inside, and the returns are good for the side benches for propagating the Carnations, the flowering plants being also on a raised bed—American style. The designer of this plan, Mr. Waugh, is most enthusiastic on the question, and adds that, so far as he knows, more will be done on the same style in the event of future building. Boilers are set on battens 4ft 6in from ground level.—STEPHEN CASTLE.

Hydrocyanic Acid Gas.

The practice of using canvas covers for fumigating is not so common in Great Britain as in some other countries, and the method followed in the colonies may here be given for the guidance of those who wish to undertake orchard fumigation with hydrocyanic acid gas. According to Claude Fuller, the Natal Government entomologist, the covers should be of a light, durable material, and comparatively gas-tight, the most suitable probably being canvas. Eight-ounce American duck canvas is recommended.

Water Lilies for Pond.

A pond, 45ft by 54ft, will accommodate a dozen varieties, or preferably groups of them, say three plants for each clump, and at such a distance from the circumference or sides of the pond as say 6ft from the edge. It is assumed that there is not less than 2ft depth of water at the points where the plants are to be introduced. The distance between the plants or groups may be not less than 9ft, as nothing is so destructive of effect as the plants over-running the whole area of water surface by foliage. The plants, whether singly or in groups, should be disposed, however, at irregular rather than regular distances, both as regards distance between and from side of pond, and the varieties should be arranged so as to have the best effect in respect of contrast of colour. Therefore, the following very best Water Lilies may be disposed according to individual desirement:—

Nymphaea atropurpurea, enormous flowers, 6in in diameter, of an intense crimson colour.

N. Ellisiana, flowers brilliant carmine purple, very sweetly scented, and one of the choicest Water Lilies grown.

N. Gladstonei, white, semi-double.

N. gloriosa, very deep rose and richly scented, bold foliage, large blossoms, and free bloomer, the finest, in my estimation, of all Water Lilies.

N. James Brydon, bright pink, strong grower.

N. Laydekeri rosea, delicate pink, deepening to rose-pink, vigorous grower, and one of the very best.

N. Marliacea chromatella, clear yellow with bright orange stamens, very fragrant, and produced continuously through the summer and autumn months.

N. M. ignea, rich deep crimson, the brightest in colour of all *Nymphaeas*, and the flowers very large.

N. M. albida, pearly-white, large, and fragrant.

N. odorata, flowers cup-shaped, with broad pure white petals, freely produced, and very fragrant.

N. o. sulphurea, large yellow fragrant flowers, deeper in colour than *N. Marliacea chromatella*. The variety *N. o. s. grandiflora*, very large and fragrant, is distinct.

N. tuberosa, large white flowers, large leaves, and plant very vigorous-growing, grand for deepest and broadest parts of water.

N. t. rosea, exquisite soft rose, large and handsome, vigorous growing.

The foregoing, omitting *N. o. s. grandiflora*, thrive in any pool of water of moderate dimensions, and from 2ft to 3ft in depth of water, this not exceeding 3ft to 4ft for the strongest growing varieties. The plants succeed best planted on hillocks of turfy loam, decomposed manure, and rough sand, or rich garden mould. These, surrounded or enclosed by pieces of stone to hold up the soil, are imperative in the case of cemented ponds, and, of course, cannot be made without drawing off the water, the space enclosed being about 3ft across. Thus, for a group of three the area should be in the form of a triangle, but with points circular, a radius of 18in being described from a centre, and 18in from the centre of this draw circles corresponding to the points of a triangle with a line of that length, and on the circumference place the stone in open order, pigeon-hole-like, about 1ft deep or high, and in this place the soil, all the better if on a 3in layer of rubble. The plants can then be placed in, and to prevent any possibility of floating, stones may be placed on the surface of the hillock, so as to hold the rhizome or tuber down, but not interfering with the crown of each plant.

Where it is impracticable to make a hillock, as in case of many ponds, on account of the water not being withdrawable, the plants may be placed in baskets of rich soil, securing them to prevent any possibility of their floating through washing away of the soil, though the basket prevents this to a great extent, submerging these in the places where the plants are intended to grow. The plants in many nurseries are now prepared in specially made baskets for sinking by means of a brick or stone at an extra cost of about 1s. 6d. each, and these I recommend for those intending to plant Water Lilies in mud or clay ponds. All that is necessary in such case is to submerge the plants where desired, and in the case of a number of plants being ordered the charge is much less, about 12s. per doz. In the case of cemented ponds the plants may be placed in tubs, costing from 7s. 6d. to 15s. each, and these can be pushed into the water to where there is the desired depth, but the stone-prepared stations are far the best.

The best time to plant Water Lilies is in April, May, and June. They then have time to become established; and once this is effected they are best left to themselves, at least for a time, as they, like everything in Nature, are apt to become crowded, and then produce little beyond leaves. Close planting, therefore, should be avoided, and they must be given a chance, exposure to all the sun and light possible, not encroached upon

by "pond weeds" or any other aquatic plants, and if there are swans, it is better to omit the Water Lilies, as the swans are apt to pull the plants to pieces, while water-rats or voles devour the roots.—A.

Water Lilies in Tubs.

Passing from this to a kindred subject of Water Lilies in tubs for a garden of, say, one and a half acre with water supply laid on, it is not difficult to grow Water Lilies in tubs, shallow and broad. The arrangement of the tubs is a matter of taste and convenience, both for observation and for supply of water. They should, however, be in positions fully exposed to the sun, so as to have all the light possible, and if in sheltered, but not over-shadowed, situations all the better. Positions by walks or at the foot of rockwork are suitable. Ordinary paraffin barrels cut in two by the bung-hole answer fairly well, though they do not admit of large examples, being only some 2ft in diameter and 15in deep when so prepared. They must be "burned out," that is, charred inside, as usually done for use as rain-water collecting barrels. The tub is then sunk in the ground level with the surroundings, and a layer of pieces of rock or broken flints placed in, and on this 6in of good garden soil, or turfy loam, with one-third of leaf mould or well rotted (reduced to mould) manure, and one-sixth of sharp sand. Plant in centre one to three Water Lilies, according to width of tub and of habit of plant, and on all a couple of inches of clean river sand, gravel, or flint grit. Add water gently until the tub is full, and leave for a few days to settle, when skim off any floating dirt, repeating this till the surface is perfectly clear. Surplus water in the case of barrels halved will pass off in the case of heavy rains by half bung-hole aperture; in the case of other tubs holes may be bored near the tops for the water to escape by, and so preventing overflowing. In some instances other plants are introduced, such as *Vallisneria spiralis* to aerate the water, and keep clear and pure. Indeed, the Water Lily tubs are made receptacles for newts, water snails, and even gold fish, not forgetting water beetles and spiders. Islands are sometimes formed of large pieces of cork, setting a small fern in moss and a little soil on the island, this attracting flies to be snapped up by the newts or tritons that get on it, as they cannot live constantly under water, and how they survive the winter in a vessel from which they cannot escape is strange, as most newts winter on dry land, their torpor lasting for six long months, and living in water only for three months or more, and, like toads and frogs, for breeding purposes spending most of their time on dry land. Thus, unless the newts are prevented, they will certainly escape, hence a zinc rim is fixed all round top of tub, projecting about 1in over and a couple of inches above the water to keep them in. A worm or two of small size once or twice a week is ample food for the newts, while any worms or slugs tumbling in will be eaten by the newts or gold fish, and the water snails devouring any loose leaves blown in, as well as keeping down confervaceous growths. Such is the length to which I have known amateurs push their hobbies, many water plants besides Water Lilies being grown in tubs sunk in the ground, and appearing successively by the sides of paths as so many miniature lakes.

The white Water Lily (*Nymphaea alba*) is the form most commonly grown, and with the yellow Water Lily (*Nuphar lutea*) most moderate in price. *Nymphaea Andreana*, cup-shaped flowers, outer petals dull white at apex and red below, inner petals dull dark red, stamens orange, leaves blotched chocolate, is a moderate grower; the Bohemian Water Lily (*N. candida*), white, is a good grower and free bloomer. *N. flava*, citron yellow, is a neat variety, surpassed, however, by *N. Marliacea chromatella*. For growing in shallow water, say 1ft depth, *N. odorata*, white, sweetly scented; *N. tetragona* (*pygmaea*) pure white, fragrant, and a little gem; *N. t. helvola*, light sulphur yellow, are suitable. The great objection to growing Water Lilies in tubs is that of the water becoming foul. This may be obviated by changing it once a week. In that case the tubs should be placed so that the water can be readily syphoned off, and the fresh water supplied by means of hose pipe. I have not, however, found any difficulty in growing Water Lilies in tubs and basins fully exposed to the elements, without troubling about newts and other water-loving gentry, the thing being to sink the tubs in the ground and let the grass extend over the edge, or in the case of rockwork adjust this around and clothe with *Saxifragas* or other appropriate low plants. How long the tubs will last I do not know, certainly well-nigh an ordinary lifetime in some cases, and in most instances several years, though they certainly rot in time. I may mention that I once was made to try growing Water Lilies in zinc tubs or baths, someone having prompted an investment in them as ideal for a water garden. The plants, however, did not grow, only "smaller by degrees and beautifully less," either I or the tubs or baths being seriously at fault, though there was the water garden truly—Water Lily-less.

A Horticultural Retrospect and Outlook.*

It seems superfluous to say, standing as I now do before you, and coming after a long list of able men who have been your presidents, that I had much debating in my mind what subjects I should bring before you in my presidential address. There is no lack of subjects in horticulture; the difficulty is to decide what is appropriate. The presidential addresses I have listened to since I became a member of your society might be summed up under the heading "The Horticultural Outlook," and, as we must ever expect, opinions formed regarding the future must differ as much as any diversity of thinking in the human mind. Horticulture, as we have to deal practically with it at the present time, may be divided into four large important and distinct sections—namely, nurserymen and seedsmen, market gardeners, city and town gardeners, and the private gentleman's gardener.

There are sub-divisions plenty, but I will try to confine my remarks to the business and professional aspect of horticulture. It is really necessary, too, to bear in mind that in addressing this Scottish Horticultural Association, it is an association of large membership, and also in consequence of the large annual outflow and inflow to its membership, its ramifications horticulturally may be said to be co-extensive with our great Empire, and beyond it. Scotch gardeners are found the world over practising their profession, and from this chief centre in Scotland we may safely assert a large portion of these Scotch gardeners has gone forth.

It is said that for all practical purposes the present time is ours, that the past and future need not concern us, and that all wise persons act so. It is hardly possible, however, to take a broad outlook of our profession without taking as far as possible a truthful survey of the past.

I fancy I hear some of you saying, how far back are you going to take us? Well, only to 1858—fifty years ago; do not be alarmed! I had at that period secured all the school education I ever got, and started out to earn wages. The parish schoolmaster, whose school I had left, was then in the prime of life, and on the 7th of last month I had a letter from an old school-mate to say our schoolmaster was looking well, and taking as much interest in his garden as ever he did, he being always a keen horticulturist.

1858 was one of those periods of great national depression in trade that alternate with periods of great prosperity constantly recurring in the history of our country. The Great Western Bank failed that year. That threw a greater gloom over the commercial and manufacturing industries than happened in a more recent time in the failure of the City of Glasgow Bank. The cities were filled with tradesmen out of employment; the 4lb loaf was 1s.; a stone of meal was 3s.; and flour the same price. The year following was one ever to be remembered. There has been no winter since anything like approaching the winter of 1859. The Clyde and Thames were frozen so that the heaviest vehicular traffic could be taken across on the ice. What about horticulture then? That intense frost of '59 and '60 killed many young trees and shrubs that had just been introduced; but like her sister agriculture, she was booming then, and did for ten years after boom in a way that she has not done since. The leading Edinburgh nurserymen had attained to a greatness, and to a degree of wealth. They entertained Royalty; their business was very great, and their nurseries immensely large. The leading London nurserymen in this same decade—from '60 to '70—did an enormous business, and attained their highest point of prosperity. As I have already said, agriculture was booming; farmers were getting large prices for all their produce; many of them were making fortunes. Landowners had an equal right to share in the great agricultural prosperity, and so getting very much increased rents, they spent money on horticulture at that time more than they had done before or have done since. There is not the slightest doubt that our British gardens—I mean by that the large gardens of landowners, nobility and gentry—attained to their highest excellence during the decades '50 to '70.

Horticulture, in those aspects of it which give the greatest pleasure and enjoyment, is ever a varying jade of fashion. The flower gardens and ornamental pleasure grounds in the decades mentioned were of the greatest pleasure and enjoyment to those who saw them. The flower garden then at Drumlanrig was pronounced to be the finest in Europe. About 1860 the subjects used in the flower gardens of Drummond Castle, Bothwell Castle, and Tulliallan Castle would be despised now, as *Nemophila*, *Cuphea*, *Verbenas* of various colours, *Stocks*, *Tom Thumb* "*Geraniums*," *Calceolarias*. The terrace or surrounding walls were covered with various flowering creepers; the top of the terrace walls dotted with vases, statuary, and

orange trees; the flat terrace of beds relieved with vases and statuary dotted through them; a border on one side with Musk, and the few then known *Roses* planted in the Musk border; the walks and shrubberies so arranged that you came upon this flower garden all at once, or by a winding detour you got another beautiful sight of it from an eminence. I have never seen any flower gardens to surpass these, and I do not know of any flower gardens at the present time to equal them.

Between the sixties and seventies the ribbon border was the dominating fashion in flower gardens. Where that was thoroughly well done, as it was by the late Wm. Thomson at Dalkeith, people came in crowds every summer to see it and admire it. It was also at this same time the fashion to mass one colour in one large bed with a contrasting colour for edging. The plants required or used for the ribbon border and massing flower garden work were plants that required a great deal of room to keep them through the winter, and so much labour in spring, that it came to be felt the result was not worth the expenditure.

The next phases I wish to treat of show horticulture in very altered conditions in the following decades; but before leaving the decades I have been treating of, I should like to make a few observations about head gardeners and their assistants as they then were. I may at once say that a good gardener at all times is a gentleman, a man who has studied well, worked hard, and mastered a most arduous profession. His knowledge must be of the most varied kind, and his attention to duty must be of the most close and devoted character. Such characterised a very large portion of the head gardeners throughout the country in the earliest decades I have referred to. There was an emulation then amongst head gardeners to be in every sense of the word gentlemen. Amongst my earliest recollections was hearing people say, "Mr. Dodds, gardener at Scoone Palace, is the most gentlemanly man in the profession," a remark that betokened emulation. We do not hear such remarks now. I do not wish it to be understood that these gentlemen-gardeners just walked about dressed. Very many of them, most of them, worked their ten hours a day at such work as suited their position, and when their employers brought their friends to have a look round, they were in every sense fitted to walk round with them, talking intelligently to them. Since this year began, a nobleman said to me how much he had enjoyed the intelligent conversation he had had with one of these old-time gardeners.

Perhaps I might be allowed to interpolate at this point one or two observations regarding some of the present-day head gardeners. Quite recently, sitting amongst a number of men, the man next to me I did not know, but judging from his conversation I took him to be a gardener, and asked him if he was. His reply was in a supercilious, hesitating manner, "I am an overseer." The cutting down of expenses on estates has created quite a number of this class of gardener, and with considerable loss to gardening. The other observation I wish to make here is, that in quite a number of by no means small gardens, and where a number of hands are employed, there is either on the part of the owner of the garden a wish to see his gardener going about like a labourer or stoker, or on the part of the gardener an idea that the nearer he looks like a stoker his employer will appreciate his services the more. The wages of these old gardeners were proportionately commensurate with the wages of the time; more so than they are now. They were paid a good deal in "kind," with very substantial perquisites.

Let us now take a look at the assistant or under gardener at that period. Your very worthy president a year ago in his presidential address referred to this same subject as existing at the period to which I am referring. He described a most wretched state of things that he had either experienced or seen in young gardeners' bothies. It struck me at the time that, by the most graphic description he gave of the life, he had really experienced it, and that he was a most marvellous development therefrom, and I felt a justification of such a beginning. I am quite in accord with our late president in wishing that every possible amelioration should be made for the status of under gardeners, but as one who lived the life before he did (and I do not think he ever lived it at all) I neither saw nor experienced the life he depicted. We must remember that up to the decade of the fifties most gardeners' houses were little more than a but-and-a-ben in the line of sheds against a north wall with clay floors. Many farmers' houses were little more than a good but-and-a-ben, and if farmers' and gardeners' houses did at this time begin to be much enlarged and improved, it was only to be expected that the young men's bothies should be improved at a later date. What I saw and experienced of bothy life then was that a garden woman daily made the beds, made the breakfast, swept out the places daily, and washed the floors once a week. As to the dish washing and cooking, that the men had to do; they might have been worse employed.

(To be continued.)

* Mr. Whytock's presidential address before the Scottish Horticultural Association.

The Perpetual Carnation.

Two years ago, when I took over the duties at Ransdon, there was not a true perpetual Carnation on the place; in fact, excluding a few Malmaisons, there were not twenty Carnations in pots; and I was told by experienced men that I should not grow Carnations in this low district. I thought differently, and as my employer said that the Carnation was his favourite flower, I at once set to work to work up a stock. Now we have practically everything worth having in perpetuals, and most varieties of Malmaisons; also nearly all the best varieties of the border exhibition kinds. I find that, excepting a few varieties of Malmaisons and perpetuals that are very subject to rust, they all do really well. I will now give full instructions on how to work up a stock, and cultivate the perpetual varieties. First of all it is most important that you should start with good, clean, healthy plants. Procure them from a reliable Carnation grower. My first stock of them came from Mr. Dutton, of Iwer, Bucks, and although I have since had plants from practically all the best growers, some of them good plants, none have really done so well here as those obtained from the Iwer Nurseries. The best time to get them is in March, in 3in pots.

If we are to keep up to date it is quite necessary to buy in the best of the new varieties each year; but once having procured the varieties, we can easily propagate and increase them ourselves. There are many ways of striking cuttings; but I find the best way is to put a frame over some pipes where a bottom heat of from 60deg to 65deg can be maintained, and a top house temperature about 10deg lower. Put a piece of small meshed wire netting or something similar over the bottom of the frame. On this place about an inch of cocoanut fibre, and on the top about 3in of coarse sand, and put the cuttings in with a small stick, about 3in apart. The best are those taken from the sides of

the flowering growths of the plants, or better still, have some plants and do not let them flower. You will thus get better cuttings. Do not cut the cuttings unless they are too long (about 4in is a good cutting); but if you cannot get sufficient of this length, cut them off below a joint, and split them through a joint with a sharp knife. Rooted in this way, they are fit for 3in pots in about four weeks from the time of insertion.

For very small growers, who cannot propagate in a frame, a box with a piece of glass over the top will answer the same purpose. The box can be placed over some pipes, or they can be rooted in pots over a hotbed; but if this is done, use light sandy soil instead of all sand. They must be placed in a box or frame with glass over them, or they will wither and dry. The glass must be dried every morning, and if the cuttings show any sign of dampness, leave the glass off for half an hour, and also leave a crack of air on of a night. Whichever way they are propagated, they should be fit for 3in pots in from four to six weeks. The best soil to pot them in is about two parts loam and one part leaf soil, and plenty of coarse sand. When they are potted, put them back in a house where a temperature of from 50deg to 55deg can be maintained, and if the weather is very bright, shade for about a week, after which they should have all the light and sun possible. When they are rooted in these pots gradually harden them off, and move to a cooler house or frame. They will require stopping once while in these pots, so as to make them break.

Good, bushy, healthy plants must be the aim, and to obtain this the plants must have plenty of attention, light, and fresh air. When the pots are full of roots, they must be potted on again. Never let a Carnation get pot-bound in a young state; you will regret it if you do. The best size pot for this potting is a 5in, and the best soil, three parts good yellow loam, one part leaf mould, one part old Mushroom bed, plenty of coarse sand, and to each barrowload a 5in potful of bone-meal and a 5in potful of Bentley's Carnation manure. See that the pots are well drained, and well cleansed before using. Place the plants back in a cold house or frame, and give them all the air possible. Stop them as they require it, and never let them become leggy. Water very carefully, and never let the plants become dry or get too wet. The water-pot is the chief thing towards success or failure in growing Carnations. As soon as they fill these pots with roots, they are ready for the final potting. For this purpose use pots according to your plants; some of the best plants of the strong growing varieties will require an 8in pot, while some others may only want a 6in. Each grower must use his own mind as to the best size for his plants. The soil for this potting should consist of four parts good fibrous yellow loam, one part leaf soil, one part rotten manure, quarter part wood ashes (or about two shovelfuls to a

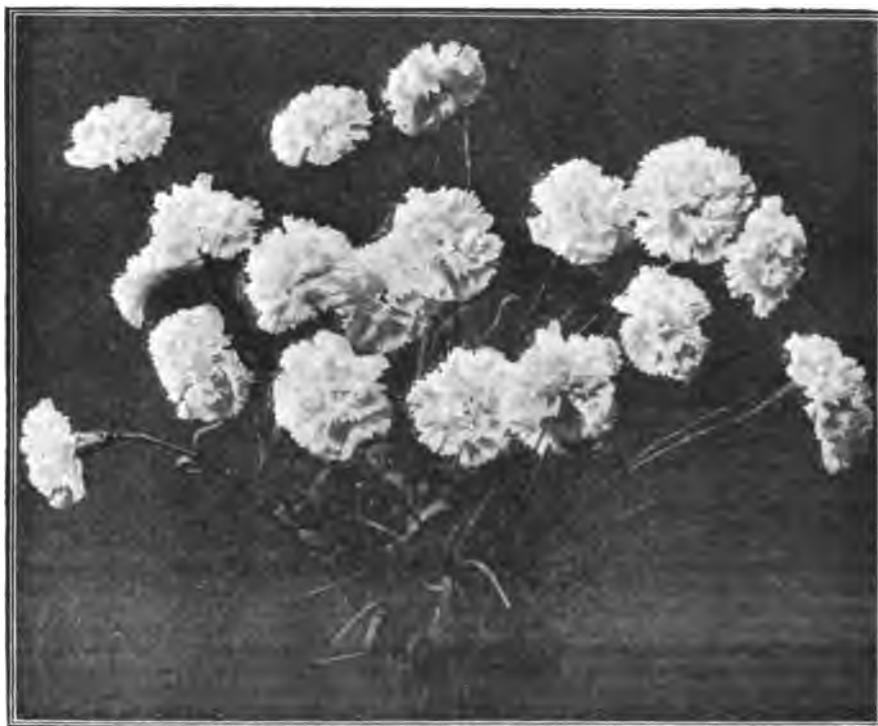
barrowload of soil); plenty of coarse sand, and to each barrowful of soil a 6in potful of bone-meal, and a 5in potful of Carnation manure, as mentioned for the 5in pots. Mix the soil well, and be sure to ram it fairly firm, and when potted place the plants in a frame, and leave the lights off whenever possible. Water very carefully for a week or two. About the beginning of June, place the plants out of doors on a good cool ash bottom if possible, attend to staking, tying, and stopping as required, and do not let any growths go to flower before the end of July.

If any of the plants show signs of rust, spray with sulphide of potassium—1oz of sulphide to four gallons of water.

About the middle of August a house must be prepared for them. A span-house 18ft wide makes an ideal Carnation house if it runs from east to west, as then a good head room for the taller plants can be obtained by having a middle stage 6ft wide, and the side stages, which could be 3ft wide, would take the shorter varieties. A house of any description that gets a plentiful supply of sun, light, and air will do; but it must be heated sufficiently to keep a temperature of from 47deg to 50deg in winter, and the more pipes the better, as it is better to have a lot of pipes just warm, than a few pipes very hot.

About the beginning of September the plants should be housed. Before taking them in, clean them all over, and if any rust on them, spray as before advised; tie them all up tidy, one stick is sufficient for each plant, as the growths can be secured to it. As soon as you have them all inside, fumigate twice with Bentley's fumigating liquid, and follow this up again later before aphids gets on the plants badly. There are many enemies to the Carnation, some of the worst being wireworm, red spider, and rust. A wireworm may kill a plant at any time if it is potted in the soil. If your plants are well grown, and syringed well in hot weather, red spider will not make an appearance, and this is really the worst enemy of the perpetual Carnation grower. I could write a whole page on these enemies, cures, and preventives, but space does not allow it.

I think if all the above instructions are carried out, and



Vase of Carnations, White Enchantress.

all small details carefully watched, anyone with a suitable house will be able to have Carnations from September until May. The varieties I can most strongly recommend are:—Robt. Craig, Britannia, Beacon, and Victory (scarlet); White Perfection, Lady Bountiful, Dutton's White Lawson, and White Enchantress (white); Enchantress, Rose-pink Enchantress, Winsor, Ethel Ward, Floriana, Mrs. T. W. Lawson, Nelson Fisher, Aristocrat, Mrs. Burnett, and Fair Maid (pinks in all shades, from a light blush to a dark cerise); Harlowarden and President (crimson); Boyes' Victory, Mrs. N. A. Patten, Variegated Lawson, Helen Gould, Aurora, Ceres, Jessica, Sensation, Mikado (Burnett's), Mikado (American), Prosperity, and the new Imperial, are all good fancies. Marmion has not been a success here up to the present. These are all proved varieties, and every one of them well worth growing.

In closing my remarks, I might say I do not think that a gardener or an amateur will ever be able to compete with the nurserymen in the large classes at the London shows, as this is one of the few flowers that is not really "artificially grown" for the exhibition table. It is such a market flower. Nurserymen grow each variety in thousands, and can always select thirty-six good blooms of perfect colour.—A. E. USHER, gardener, Ranston House, Blandford.

Dwarf Shrubs.

Rhododendron chamaecistus, dense bushy evergreen tufts characterise this species, it growing 4in to 6in high, and is covered in May or June with beautiful pink flowers, but is rarely seen in a thriving state, probably from its not having sufficient moisture in summer. It should be planted in moist sandy peat in sunny fissures, preferably limestone, being a native of calcareous rocks in the Tyrol. *R. ferrugineum* and vars. album and major, *R. hirsutum* and its vars. album and variegatum, bear the name of Alpine Rose, and are all fine for rockwork, thriving in peat, loam, and sand mixed. *R. lapponicum*, of very dwarf habit from the north of Norway and Labrador, forms tufts 3in to 6in or more high, spreading and bearing purple, crimson, or deep rose flowers. *R. setosum* hails from the Himalayan regions, and forms a dense, dwarf, erect little bush 6in to 18in in height, and is covered in early summer with a profusion of heads of deep vivid rose flowers. Having very fibrous hair-like feeding roots, drought should be carefully guarded against in hot weather.

Rosa alpina grows to a height of 18in, spreading considerably, and bears pink or rose-red flowers in June, the finest form being that named *R. pyrenaica*, a charming sub-species with large single rosy-crimson flowers. *R. laxa*, a native of Siberia, grows to a height of about 3ft, and bears white flowers with a yellowish base in July. *R. setigera* (Prairie Rose) is good for planting by large rocks or roots, to climb over. It flowers in July, corymbose, deep rose-coloured, changing to white. Strong shoots of this species sometimes grow 10ft to 20ft in a season. *R. spinosissima* (Burnett or Scots Rose) grows from 1ft to 4ft high, and produces white or pink flowers, one to three or more together, in May and June. *R. lutea*, single yellow, and *R. punicea*, its petals scarlet above and yellow beneath, stigmas purple, are also suitable for the rock garden, all thriving in loam.

Veronicas, of the shrubby New Zealand species, are good rock plants. They are somewhat numerous, some of the most distinct are:—*V. amplexicaulis*, white, leaves broad, glaucous, very thick and closely set. *V. anomala*, pure white star-shaped, neat habit. *V. carnosula*, pretty glaucous leaves, habit dwarf. *V. cupressoides*, violet, dense, much-branched, erect, Cypress-like shrub. *V. formosa*, pale blue, a fine form. *V. glaucocærulea*, deep blue, changing to purple, foliage very glaucous, with slightly hairy branches, neat habit. *V. Hecctori*, resembling Cassiope tetragona in habit. *V. Lyalli*, dwarf habit, leaves bright green, broadly ovate, slightly serrated in the margins, flowers white. *V. salicifolia alba*, leaves long, lanceolate, remote, flowers white. *V. salicornioides*, forms hillocks of deep green or sometimes golden Selaginella-like growths, very distinct and singular. *V. speciosa*, deep green foliage and deep blue purple flowers, very showy. *V. Traversi*, robust and very hardy, flowers white, forming handsome masses from 2ft to 3ft high. The species form miniature bushes, and are well adapted for growing on rockeries or earth banks in sheltered positions, they thriving in ordinary garden soil, preferably of a gravelly nature.

The hybrids or shrubby varieties of Veronicas are also good for growing on banks in choice positions, but they are not very hardy, though they will stand several degrees of frost, and are fine for flowering in late summer. They are of robust habit, and produce large and beautiful spikes of flowers and in various shades of bright colours. Plants raised from cuttings in late summer withstand the winter, while older plants perish. Wintered in frames and planted out in spring the hybrids make a fine show when flowers are scarce.—IGNITUS.



Black Currant Mite.

Some few months ago you published in the *Journal* a note from me on the success of the sulphur and lime remedy for Black Currant mite. Again this week I examined our bushes and cannot find a single "big bud." It seems almost incredible that so simple a remedy should have been such a remarkable success. Perhaps some correspondent who had it on his bushes last year, and who neglected to apply the sulphur and lime remedy, will tell us in what state his bushes are as regards mite at the present time.—J. EASTER, Nostell Gardens.

Apple, Barnack Beauty.

To-day, in the market, in conversation with a son of Mr. W. Poupart, of Twickenham, he informed me how well the above Apple was keeping, and what a grand flavour it had for eating, even though generally classed as a culinary variety. The late Richard Gilbert did much to popularise this variety, even to exhibiting the only dish at the 1883 National Apple Conference. It is described as a culinary or dessert Apple; certainly the latter when kept. Medium in size, streaked red, it is very firm, late, and handsome. In September, then, it was rightly placed second for quality, but judged now, in March, it is first, and has few equals. I have seen the original old stock tree, and having from time to time grown it with success. Very singular to relate, as I left the market I saw a half bushel on sale at a leading firm's stall, for which 5s. was asked.—COMMERCIO.

Present-day Gardeners.

In the very pertinent question which winds up the leaderette under the above heading in your Spring Number, viz., "Are gardeners to-day equal, socially and educationally, to those of the past?" there appears to open up a wide field for discussion. As to whether it is worth discussing is another story. Some who think they are affected by it, will probably think it is, hence a thought or two may throw a sidelight on the matter; but we are, of course, all apt to view even the same object from different angles. Mine is this—viz., that the radical changes in gardening, and this advisedly, have so altered its whole aspect as to make fair comparisons between the present and the past a very difficult matter. Take the past masters of a bygone generation, and it is admitted there were giants in those days, such men as Fleming, of Cliveden, and a few others whom the writer has met, men whose long service had begotten familiarity with the families they served to the extent of their considering themselves, if not exactly a member of the family, a fixed institution, at least, of the place, which, as a matter of fact, they were. Take one of these, I say, and put him in juxtaposition with his counterpart of to-day, and will you not find that "socially and educationally," the present-day gardener is not only equal, but has advanced in ratio to the advancement of gardening?

For purposes of comparison we must, of course, grade our gardeners as we do our Apples. I don't like to mention names, but in pitting samples of the past against samples of the present, top-grade samples must in all fairness be selected; and of the present, such private gardeners who are by their social culture, education, and practical knowledge of the various subjects selected to serve as authorities on the greater horticultural bodies of the day. So far as the social and educational side is concerned, I could exhumate a few of the pound-a-week grade of forty years ago (and most excellent men they were), who, as gardeners, would stand a very poor chance in applying for a situation to-day. Some, in fact, could neither indite nor write their application for a post, and not a few who then occupied this grade could not write at all; whilst plant names, if such were used other than popular ones, were sadly maltreated.

It won't do now. Gardening itself has so changed as to stand on a very different basis to what it did then. For one thing the commercial spirit of the age impregnates all. We are pretty sure that when our old-time gardener bore his Pine, or his Melon, or what not, in triumph to his employer's table, the question of cost was not broached, or even thought of. Now there are many large private gardens in which all these matters come into the calculation, and the practical spirit of the age causes them to crop up in very unsuspected places. As remarked, the changes present and impending are radical; and the more one considers this, the more difficult it is to institute comparison with either work or workers of the past

and present. Gardeners of the past were, as a body, good men, doubtless, and the stage-coach was then an excellent method of travelling; but those methods, manners, and machines are now out of date.

I am able to give a fairly good idea of what the working-day was in the life of an old-time gardener of the top grade, from the experience of a day spent with one, and I have never forgotten it. As a young head gardener, it was arranged that I should spend a day at the old home of a member of the family I served. The dog-cart met me at the station, and I reached his house in the gardens in time to breakfast with him, during which a footman came from the castle to enquire for him. (He had a slight cold.) After breakfast my host donned his everyday garb of frock coat, top hat, and taking a very substantial umbrella, which was his custom wet or fine, we went on our tour of inspection, including the castle, which was reached about eleven o'clock, when light refreshments were served in the house steward's room, which, as he told me, was part of his daily routine. An apology later on in the day for monopolising his time, brought the further information that beyond having my company it was merely his normal day's work. He was the figure-head of a big gardening establishment, and the working heads were the inside and outside foremen, and a very stately and dignified figure-head he was, and but a type, not the exception, of the high-grade gardeners then reigning. His counterpart of to-day is in his movements as the locomotive is to the stage-coach, and he has to be, and has to bear, the big burden of knowing the ways and means of providing for all the exigencies and demands made by modern society. In short, it seems to me impossible to draw comparisons—fair ones—between gardeners of the present and the past. But one infers that gardeners of to-day are not only equal, "socially and educationally," to those of the past, but more, also, for if they had not advanced in ratio to the world's progress, gardening would not be the great thing it is to-day. —K., Dublin.

Tariff Reform.

"Grower," page 292, makes many sensible remarks anent this subject. While discussing it, there is no need to take a political view of the matter one way or the other; simply take facts as they are, and their results, beneficial or otherwise, to those immediately concerned. Being more closely connected with farming interests than horticulture at the present time, I have, in view of the working of the Small Holdings Act, an opportunity of knowing what a boon some protective tariff imposed on foreign imports for the benefit of English cultivators would mean. Take one single item—Wheat. In October last, owing to deficient crops, this cereal rose in price to £1 per sack of four bushels, where it remained for two months. As the Argentina crop became harvested and shipped to England in such huge quantities, prices quickly fell, until at the present moment 16s. per sack is the general price. I would not say anything against this if bread was sold in proportion to the drop in Wheat, but that is not so. Bread advanced 3d per gallon, but instead of declining as per the Wheat, we get a drop of 1d. Take the market grower of vegetables as an instance. What do we find? Last year Peas were so plentiful in the markets from abroad that home supplies realised the sum of 2s. per bushel; Brussels Sprouts in the autumn were obtainable at 9d. per bushel. Acres are at the present moment standing unoccupied in consequence! The increase in small holdings will but aggravate the evil of low prices, and I forecast that their increase will raise a greater cry than ever for protection, as it is a well-known fact that the greater the produce the lower the price to the grower—I will not say to the consumer. Or take the question of poultry and eggs. For the latter, 8d. per dozen is the price obtainable in the open market! Then those writers of inexperience will say, Why don't we produce more eggs in England; why pay so many million pounds yearly for foreign produce? I say, "Why are not Englishmen encouraged to produce what is required by commonsense methods?" Those who make the loudest cries of "back to the land" know the least of the practical side of the cry. In the neighbourhood of towns the small holder will do better, but in rural districts circumstances are so different. Practical men know what can be produced on fifty acres.—E. MOLYNEUX.

"Caladium Seedlings."

A small brochure under this title has been published by Mr. Richard Hoffmann, Tower House, Streatham, with cultural notes by his gardener, Mr. Thomas Tomlinson. Mr. Hoffmann first started to grow Caladiums at Thurlow Lodge, Dulwich, in 1895, with a few plants he bought from Messrs. Peed. He afterwards acquired Messrs. Lietze's Brazilian novelties, and in 1897 started corresponding with Mr. Blue, of Paris, the most successful of Caladium hybridists. Messrs. Veitch have sent out most of the Hoffmann seedlings, a list of which, with descriptions, are published in this brochure.



Home-grown Oranges.

From time to time Messrs. Rivers and Son, Sawbridgeworth, exhibit collections of their own nursery-grown Oranges and Lemons, and other species of Citrus. Bushes and plants of various sizes are shown, together with fruits. Oranges were favourite plants of our ancestors, and there is no better fruit than a home-grown Orange—not excepting the Apple.

New American Fruits.

American novelties generally, and the productions of Luther Burbank in particular, have often been written about in an extremely disparaging manner in this country. The methods of that prominent hybridist have also been severely criticised, and characterised as crude and unscientific. On these points we will make no comment, but we think those who have read any of the publications of the "Wizard" of the West Continent, dealing with plant breeding, must acknowledge that he is at least brimful of enthusiasm, gifted with a vast amount of imagination, and animated by a keen desire to improve the products of the vegetable kingdom. No man can practise plant breeding on so vast a scale as Burbank has without producing some new forms of flowers, fruits, or vegetables worthy of the attention of horticulturists generally. The pity is that some unworthy productions do get unwarrantably boomed to the detriment of genuine improvements upon older types. The chaff needs sifting from the grain, and the process of sifting is often an expensive one; nevertheless, it is wise to be ever on the alert in this direction.

At the present time we are interested in testing the merits of a new Plum, and a Plumcot, which are described as "Burbank's latest and best," and should they prove amenable to cultivation in this country, and be found to possess all the good qualities asserted in their favour, the sooner they are largely grown in Britain the better.

The new Santa Rosa Plum is thus described by the distributor: "It has been under trial in the experimental grounds at Sebastopol for the past six years, during which time it has never failed to produce bounteous crops of uniformly large, perfect fruits of a deep purplish-crimson colour, averaging 6in in circumference each way. It possesses every essential to a marked degree, calculated to make it a prime favourite wherever the Plum luxuriates, viz., is a good grower, good bearer, fine shipper, good keeper, and in every way a money-maker. . . . The superb market quality of the Santa Rosa Plum has never been equalled. Its eating quality is unequalled, rich, fragrant, delicious, surpassingly exquisite. The tree is a strong, vigorous, upright grower."

The Rutland Plumcot, "as its name clearly indicates, is a cross between the Plum and Apricot, a feat deemed impossible of accomplishment a few years ago. That its perfection was a matter of patient labour, close study, and keen observation goes without saying; but with a continuity and singleness of purpose, Burbank has been successful in overcoming all obstacles, thereby creating a fruit which happily partakes of the qualities of both parent stocks. Though not a heavy bearer, it produces fine large fruits in liberal quantities every year where Apricots fail. As to its blooming and fruiting, though recognised as an early bloomer, it nevertheless possesses characteristics insuring regular crops. The flowers appear continuously over a long period, thus enabling it to escape late spring frosts. One of its striking features is the brilliant red flesh of the fruit, which possesses a strong sub-acid flavour, rendering it a favourite for cooking and for jellies and jams. When fully ripe, it is an excellent dessert fruit, possessing a delightful Apricot Plum flavour, soothing to the palate, and melting in the mouth. Fruit about the size of an ordinary Apricot, with a deep purple, velvety skin. The branches are long and pendulous; foliage small in character, resembling that of the Plum rather than that of the Apricot."

Although this Plumcot is said to be considerably hardier than the Apricots, it scarcely seems likely that it will prove suitable for growing in the open as a bush or standard in this country, but it should succeed against a wall. This, however, is one of the points which experience only will show, and in due time, if all goes well, we hope to be able to say something definite about the behaviour of both fruits in this country. We have no "axe to grind" in regard to the matter, but are animated with a desire to draw attention to any promising novelty, from whatever quarter it may come.—G. O.

Societies.

Royal Horticultural, March 31st.

The exhibition on Tuesday last was mainly composed of Carnations, Dutch bulbous flowering plants, and forced ornamental shrubs. Orchids were scarce, but there were several charming displays of Narcissi. The prizes offered by the Dutch Bulb Growers' Society were competed for.

Hyacinth Show.

Classes 1 and 2 seemed to be absent. In class 3 for eighteen Hyacinths, Mr. Beckett, of Aldenham House, Elstree, was equal first with Mr. R. T. Brishell, 107, High Street, Wavertree, Liverpool. Neither lot was superlative, and the Dutchmen, who offered the prizes, were not highly elated. Some of the best varieties were City of Haarlem, King of the Blues, Jacques, Enchantress, Roi des Belges, Cardinal Wiseman, and La Grandesse. For twelve Hyacinths, Mr. James Vert, Audley End, Saffron Walden, was the winner, and Mr. G. MacKinlay, Wrest Park, Amptill, Beds, was second; four entries. For the six, Mr. H. Parr, Trent Park, High Barnet, beat Mr. H. G. Bartlett, Severndroog, Shooter's Hill. In the nurserymen's division, Messrs. R. and G. Cuthbert alone staged, and were awarded first prize.

Orchid Committee.

Present: Mr. J. Gurney Fowler (in the chair); with Messrs. James O'Brien, de Barri Crawahay, W. Boxall, F. Sander, G. F. Moore, H. G. Alexander, A. A. McBean, W. P. Bound, Arthur Dye, Walter Cobb, J. Charlesworth, F. J. Thorne, H. A. Tracy, W. H. White, H. Ballantine, Gurney Wilson, Frederick J. Hanbury, Norman C. Cookson, W. Bolton, R. Brooman White, C. J. Lucas, Harry J. Veitch, and Stuart H. Low.

A cultural commendation for a superbly cultivated large specimen *Ada aurantiaca*, from Major Holford (per Mr. H. G. Alexander), was deservedly awarded. There were no medals awarded to groups.

Fruit and Vegetable Committee.

Present: Mr. Alex. Dean (in the chair); with Messrs. W. Bates, J. Willard, H. Markham, Edwin Beckett, Henry Parr, Joseph Davis, John Lyne, Wm. J. Jefferies, P. J. Tuckett, Thos. Arnold, Chas. Foster, J. McIndoe, John Harrison, Geo. Wythes, and C. G. A. Nix.

A cultural commendation was awarded Miss C. M. Dixon, Elmcroft Nursery, Westergate, Chichester, for a dish of Strawberries.

A display of Strawberries in pots and of fruits on dishes came from C. F. Raphael, Esq. (gardener, Mr. Grubb), Porter's Park, Shenley. They were ideal, and won a very high award, namely, a silver Knightian medal.

Messrs. Rivers and Son, Sawbridgeworth, Herts, once again exhibited a collection of Orange fruits from their own nurseries. Home-grown Oranges cannot be beaten for quality and flavour. (Silver Knightian medal.)

Narcissus and Tulp Committee.

Present: Mr. H. B. May (in the chair); with Messrs. J. T. Bennett-Poë, P. Rudolph Barr, J. D. Pearson, J. Pope, G. H. Englehart, Alex. Wilson, F. H. Chapman, A. Kingsmill, R. W. Wallace, E. M. Crossfield, Arthur R. Goodwin, W. W. Fowler, Chas. T. Digby, Joseph Jacob, W. Goldring, P. D. Williams, E. A. Bowles, R. Sydenham, James Walker, Walter T. Ware, G. W. Leak, Chas. Dawson, and Chas. H. Curtis.

Beautiful Narcissi came from Mr. Chas. Dawson, Rose-morran, Gulove, Penzance. Some charming things were shown, among them several seedlings. *Althaea*, orange cup and white perianth; *Monica*, orange cup, sulphur perianth; *Nipper*, orange-red cup with ivory perianth, and *Estelle*, were each very fine.

Forced Darwin Tulips from Messrs. R. Walker and Co., Colchester, were attractive. They also staged *Mertensia virginica*, *Primula rosea*, and several pans of showy Crocuses.

Messrs. Barr and Sons, King Street, Covent Garden, W.C., sent Daffodils, in which Peter Barr was prominent. *Fairy Queen* is also good, and *Lucifer* and *Dandy Dick*. The new rich yellow *Freesia Chapmani* was exhibited, too, as well as Tulips and other hardy bulbs.

Messrs. Cartwright and Goodwin, Blakebrook, Kidderminster, contributed a selection of choice Narcissi, among which were at least two new seedlings, one being a new rich yellow trumpet, a cross between *Emperor* (seed parent) and the Tenby Daffodil. It was greatly sought after, and is very strong. A particularly good and early Leeds was *Evangeline*, with broad white perianth and citron cup. *Alton Locke* was the best poeticus variety. Among others there were *Duchess of Westminster*, *Seagull*, *White Lady*, *Branston*, *Gloria Mundi*, *Madame de Graaff*, and *Glory of Noordwijk*, the latter a noble bicolor trumpet. (Silver Banksian medal.)

From Messrs. R. H. Bath, The Floral Farms, Wisbech, came early cottage Tulips, single and double, the best being *Murillo*, *Gloria Solis*, *Couronne d'Or*, as doubles; with *Couleur de Cardinal*, *Prince of Austria*, *Sarah Bernhardt*, *Cottage Maid*, *Standard Royal*, and *Prince de Ligne*.

Floral Committee.

Present: Mr. W. Marshall (in the chair); with Messrs. Chas. T. Druery, John Green, W. A. Bilney, T. W. Turner, R. C. Notcutt, C. J. Salter, Wm. Howe, John Jennings, Arthur Turner, Chas. Dixon, Chas. E. Pearson, Wm. Cuthbertson, Chas. E. Shea, W. P. Thomson, E. H. Jenkins, Wm. J. James, George Paul, Herbert J. Cutbush, G. Reuthe, Chas. Blick, J. F. McLeod, and James Hudson.

Mr. Reuthe, of Keston, Kent, filled a larger space than usual, having hardy shrubs and alpine plants. Among the latter were *Androsace carnea*, *Primula viscosa nivalis*, double Primroses, and Hepaticas, *Saxifraga Griesbachii*, *Primula marginata*, *Draba lasiocarpa*, and *Shortia galacifolia rosea*.

The Misses E. and M. Kipping, Hutton, Essex, staged a rockery-bank with hardy flowers, including a red double Daisy with golden variegated foliage.

Mr. H. Burnett, St. Margaret's Vineries, Guernsey, brought a considerable display of Carnations, as usual of the highest quality. *Enchantress*, *Britannia*, and *Marmion* were conspicuously noteworthy.

Messrs. Hugh Low and Co., Bush Hill Park, Enfield, filled the entire length of one table with Carnations. These they arranged in bamboo stands, and on mossed pyramids. The leading varieties were shown largely and well. *Aristocrat*, *Winsor*, *Beaton*, *White Enchantress*, and *Britannia* were especially fine. There were a goodly representation of *Malmaisons* as well. This was certainly a fine display. The new dwarf pot Rose, *Baby Dorothy*, was on view.

Forced Roses came from Mr. George Mount, of Canterbury, who again had a splendid selection of ideal blooms—long in stem, firm, rich, and fragrant.

Messrs. Frank Cant and Co., Braiswick Rose Gardens, Colchester, also sent Roses in pots, and as cut blooms. The newer kinds were a distinct feature, as *Trier*, *Mrs. Cutbush*, *Lady Roberts*, and *Richmond*. *Lady Roberts* was the best.

Messrs. T. S. Ware, Ltd., Feltham, had mainly *Aubrietias* and hardy *Primulas*. Of the former, the variety *Dr. Mules* was very fine. *Arabis aubrietoides*, with pale pink flowers, is also most desirable. The pretty but difficult-to-grow wall shrub, *Dendromecon rigidum*, and the Swan River Daisy were each represented.

Messrs. Richard Smith and Co., Worcester, enlivened a portion of the hall with balloon-trained Clematises. They usually reserve these for the Temple Show, but have "started their season" earlier this time. We would name *Albert Victor*, President, *Miss Bateman*, *Nellie Moser*, *Sir G. Wolsley*, *Mrs. Quilter*, *The Queen*, *Standishi*, and *Mrs. Geo. Jackmann* as of the best. The new *Clematis montana rubens* was also included, as well as Smith's Double Crimson *Tropeolum*, a fine richly-flowered winter-bloomer.

Messrs. James Veitch and Sons, Ltd., Chelsea, S.W., brought forced ornamental shrubs, which they arranged in blocks of distinct colours. Thus there were blue *Hydrangea Hortensia*, *Cerasus pseudo-Cerasus* J. H. Veitch (pink), *Deutzia gracilis*, with Lilacs, *Rhododendron indicum Kämpferi*, *Rose Mme. Levavasseur*, and *Azalea roseiflora*. With these there were climbing shrubs *Rubus bambusarum*, *Vitis heterophylla variegata*, *Vitis Thomsoni*, and the new *Clematis montana rubens*—a fine collection. They also showed stove and greenhouse plants in the perfection of growth and flower. *Azalea amena Hexe* was shown in 4in pots, as neat little bushes. *Primula Kewensis farinosa* was also here, with *Coreopsis Grantii*, *Crocea augustifolia*, *Nidularium pictum* (a Bromeliad), *Clianthus puniceus*, and Veitch's improved strain of *Primula obconica*.

Messrs. Bell and Sheldon, Castel Nursery, Guernsey, confined themselves to a few good varieties of the perpetual-flowering Carnations. The flowers were of excellent merit, rich, and good.

Messrs. Veitch sent Carnations in pots.

Three bunches of winter-flowering Sweet Peas (Algerian and American strains) came from Mr. Chas. Foster, University College Gardens, Reading. Though not quite up to July standard, these were pretty and fragrant.

Messrs. R. and G. Cuthbert, Southgate, N., filled the entire length of the west end of the hall with Hyacinths in pots. There were 136 varieties, and about 1,000 plants. The best yellows were *Ball of Gold* and *City of Haarlem*. *Jacques* is the best pink, and *Le Grandesse* and *L'Innocence* the best white. There is, of course, abundance of blues in all shades. *King Cole* is nearly black; *Charles Dickens* is maroon-purple; and *Lord Mayo* is purple with a white eye.

Major Lister (gardener, Mr. F. Baker), Warninglid Grange, Haywards Heath, Sussex, exhibited a small group of very large-flowered *Hippeastrums*. They were admired and commented upon by all who saw them.

Messrs. Sutton and Sons, Reading, staged a nice selection of Italian Hyacinths in the varieties Giant Primrose, Giant Blue, and Giant White. These are not so overpoweringly fragrant as the large Dutch Hyacinths, and they are much more graceful and pretty. They also staged a bank of the cactus-flowered Cinerarias, with splendid flowers, but the habit seemed to us too dwarf.

Messrs. Peed and Son and A. F. Dutton also had Carnation groups, as well as Mr. W. H. Page, of Hampton. Messrs. Peed likewise contributed seedling and young Caladiums. A splendid bank of forced shrubs, admirably arranged, came from Mr. L. R. Russell, of Richmond. The standards in Cytisuses and Cerasuses were very fine. Messrs. H. Cannell and Sons, Swanley, again staged their zonal Pelargoniums. Mr. R. Gill sent his Cornish Rhododendrons; Messrs. Cutbush had hardy plants and Carnations, and H. B. May contributed greenhouse plants. Mr. R. Felton, Hanover Square, staged forced Roses—Chatenay and Kaiserin Augusta Victoria especially fine; and Messrs. Paul and Son from Cheshunt sent new and rarer shrubs, as *Ribes speciosa*, *Cytisus Firefly*, *Spiraea Peach Blossom*, new single Rose Amber, and other things.

FLORAL COMMITTEE'S AWARDS.—Silver-gilt Flora medal: Messrs. J. Veitch and Sons, L. R. Russell, H. Burnett, and Richard Smith and Co. (Worcester). Silver-gilt Banksian to Bell and Sheldon, Guernsey. Silver Banksian to R. and G. Cuthbert. Silver Flora to Geo. Mount, W. Cutbush and Son, and Hugh Low and Co. Silver Banksian to Cannell and Sons, R. Felton (Hanover Square, W.), W. H. Page, and H. B. May and Sons. Bronze Flora to F. Cant and Co., A. F. Dutton, R. E. Gill, Peed and Son, G. Reuthe, R. Wallace and Co., and T. S. Ware, Ltd. Bronze Banksian to the Misses Hopkins.

Certificates and Awards of Merit.

Cattleya Schröders, *Queen Alexandra*.—Very pretty, with a distinct zone of purple in the middle of the lip; the throat orange. A.M.

Cattleya Susanne Hye de Crom, var. *Jungfrau* (M. Jules Hye de Crom, Ghent).—Very large and noble, of a pure white, with rich gold throat; substance thick. F.C.C.

Cypripedium Berkleyanum, *Echin's* var. (J. Forster Alcock, Esq.).—Parentage: *Bozalli* × *bellatulum*. A thick-petalled, gracefully sinuous, medium-sized flower, coloured magenta and edged white. A.M.

Cypripedium Helen II., *Westonbirt* var. (Major Hclford).—Parentage: *Cyp. insigne* *Harefield* Hall var. × *Cyp. bellatulum*. A pretty flower of medium size and good shape, ground colour buff bronze, spotted and suffused ruddy crimson. F.C.C.

Iris sind-pur Amethyst (C. G. Van Tubergen, jun., Haarlem).—Parentage: *Iris sindjarensis* × *purpurea*. The colour is heliotrope-violet, with white on the fall and citron keel. A.M.

Odontoglossum percutum, var. *J. R. Roberts* (J. Gurney Fowler, Esq.).—Parentage: *Ardentissimum* × *Rolfæ*. A lovely flower, of quiet attractive colours; ground colour white, edged mauve and a potted brown and crimson. The tip of the lip is white and there is a rich conspicuous gold crest. A.M.

Orange Navel (T. Rivers & Son).—This fine Orange received an award of merit.

Rhododendron Purity (Charles Turner, Slough).—This is a large flowered, campanulate, waxy white, greenhouse *Rhododendron*, evidently a hybrid of *R. Veitchiana*. A.M.

Shortia galacifolia (Wallace & Co.).—A pretty and neat dwarf Alpine with pale silvery mauve, rotund, fringed flowers, lin in diameter and only 3in high. A.M.

Viola gracilis (Wallace & Co.).—A large-flowered *Viola*, rich purple. It is like a large *Viola*. A.M.

Winter-flowering Carnation.

SPRING SHOW.

The second show of the season, 1907-8, was held yesterday, April 1, at the Royal Horticultural Society's Hall, Vincent Square, Westminster. Many of the exhibits from the R.H.S. exhibition on the day previous had been left over, and the hall was therefore interestingly and well filled. The competitive classes, numbering thirty-six, were arranged on tables around the walls. The day was bright and fine, and there was prospects, as we left, of a good attendance.

The annual general business meeting was held in the evening, when the chairman of committee, Mr. J. Brunton, presided. This was followed by the annual friendly dinner.

The report for 1907 alluded to the two successful exhibitions that were held at the Royal Botanic Society's garden in Regent's Park, and the Carnation Society expressed its great indebtedness for the admirable arrangements carried out by Mr. E. F. Hawes, the garden superintendent, for the comfort and convenience of visitors and exhibitors, and for the liberal treatment by the R.B.S. The report also mentions the desirability of adopting a scheme of registration of new varieties on the American plan. [A scheme, we learned, was to be placed before the present annual meeting.]

The committee were in the position (according to the report) to show a credit balance in the accounts of 1907, notwith-

standing the loss by death and resignation of twenty-five members. The membership now stands at 159.

The committee heartily thanked the donors of special prizes. The question of awarding medals and of publishing a pamphlet dealing with matters concerning the winter-flowering Carnation, is under consideration. At present, owing to the initial expense and the financial position of the society, the work cannot be taken in hand; but its extreme desirability is admitted.

A lecture was given yesterday afternoon.

Class 1 was devoted to the novelties. The judges eventually gave a F.C.C. to Marmion (H. Burnett) "as a new break"; and an A.M. to Mikado (Burnett). The latter received full points (25) for an A.M., but the possible obtainable is 40.

Class 2, thirty-six white: Mr. W. H. Lancashire, Guernsey, was first with *White Perfection*; Mr. W. E. Wallace, Eaton Bray, second, with *Lady Bountiful*; and Mr. Lange, of Hampton, third, with the same. Class 3, thirty-six pink: Mr. W. H. Page, first, with *Enchantress*; Mr. Lancashire, second, with the same, in seven entries. There was only one entry in class 4 for thirty-six light pinks, and second prize was awarded to Mr. C. Englemann, who had *Fiancée*. Five entries were attracted to class 5, and Mr. Lancashire was first and Mr. Page second, each with Mrs. T. W. Lawson. For the thirty-six crimsons, Mr. Lancashire again led, having President; and Mr. Englemann was second with *Harlowarden*, which was decidedly inferior. For the three dozen scarlets, Mr. Lancashire beat Mr. Englemann, with *Robert Craig* and *Victory* respectively. There was only one entry in class 8, and that was with *Jessica* from Mr. Englemann in the "any other colour" class. Mr. Lancashire was in very strong form, and his flowers were superb. There were also good flowers in the next division, for classes of eighteen blooms each. In the amateur's and gardeners' section, Mr. James Vert, of Audley End, was chief winner; and Mr. A. T. Paskett, Groombridge.

For twelve plants in six varieties, Mr. A. T. Paskett, Groombridge, in class 27, was first. Mr. Hayward, Kingston-on-Thames, took the lead in the decorative classes.

NON-COMPETITIVE EXHIBITS.—Medals were awarded for displays as follows:—Gold, Mr. W. H. Page, Hampton; C. F. Waters, Balcombe; Hugh Low and Co.; and Mr. H. Burnett. Silver-gilt medals: Messrs. Bell and Sheldon, Morris (Guernsey), and A. F. Dutton, Iver, Bucks. Silver medals: Mr. Lange, Hampton, and G. Englemann, Saffron Walden. There were several other groups, but these did not win an award.

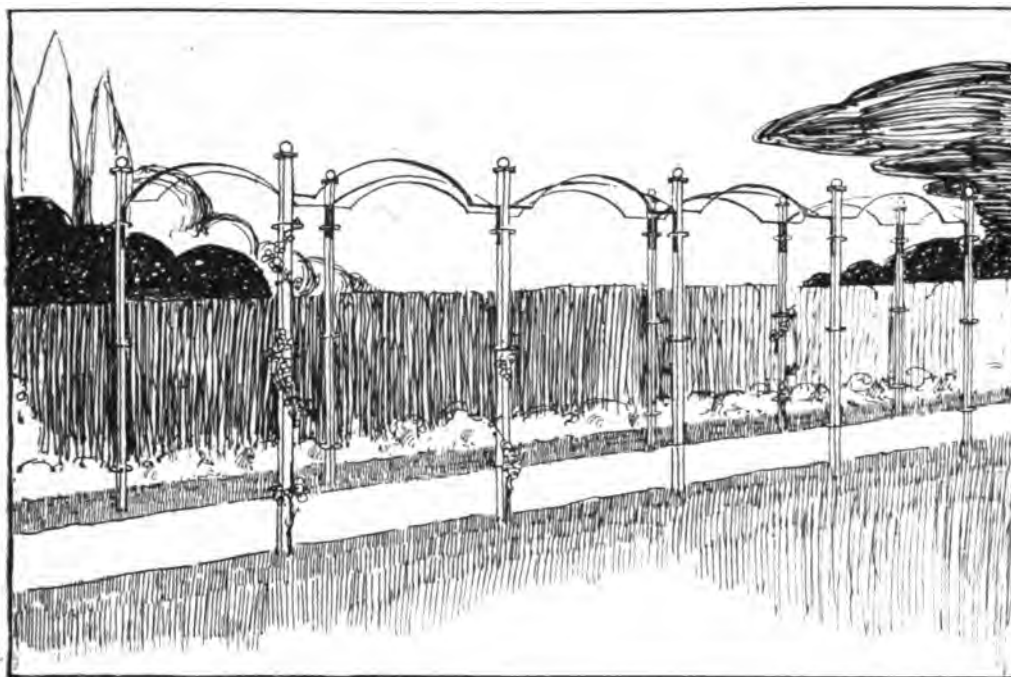
Birmingham Gardeners'.

At the fifth fortnightly meeting of the spring session, Mr. Walter Jones in the chair, there was a capital attendance of the members to hear Mr. Alfred Cryer (gardener to J. A. Kenrick, Esq., Berrow Court, Edgbaston), discourse upon "Bulbs for House Decoration and Exhibition." The subject was dealt with in a very instructive manner, and was prefaced by a reference to the atmospheric influences existing within the purlieu of a manufacturing town, such as which predominated at Edgbaston, and which he, the lecturer, had to combat; also as to the geographical aspects, not altogether of the most favourable, towards the cultivating of flowers to the highest state of perfection, as compared with those produced under more favourable auspices. Mr. Cryer, who is a well-known successful cultivator of such as *Chrysanthemums*, *Primulas*, *Cyclamens*, and especially as a raiser of *Hippeastrums*, also vegetables, enumerated a host of bulbous plants suitable for the purposes indicated, leading with the varieties of *Narcissi*, and recommended for table decoration masses of one kind only, grown in deep pans or bowls, hence producing both a striking effect and a distinctive effect, suggestive of a "richness of resources," probably more natural and artistic than the intermixture of varieties, which, at any rate, would require a very judicious selection of forms and shades of colour to produce a harmonious whole. Similar remarks applied to the various kinds of *Lilies* and *Tulips*; likewise as to border culture and for cutting purposes. The lecture was listened to with deep attention, and an animated discussion arose. A hearty vote of thanks was conceded the lecturer.

Sheffield Floral and Horticultural.

HORTICULTURE IN SHEFFIELD.

After the very encouraging shows that were organised by this society it is a matter of regret that the society should have come to an end. Last year the committee had a loss of about £100 to face, and raised the amount to pay accounts, but there was not sufficient enthusiasm left to continue. The secretary had desired for some two years to be relieved of the office, but held on rather than see the society come to an end. Circumstances, however, we understand, compelled him to give up, and no one could be found to undertake the duties, and the committee being lukewarm in the matter, the society has been wound up. Probably in no other town would such a society have been allowed to come to grief, but the gardeners of the district are very apathetic—there is no "go." An excellent



The "Roundway" Pergola.

opportunity offered for a spring show, but the Chrysanthemum Society, who were asked to organise it, have done nothing in the matter. Apathy is here again apparent, and there seems no hope for horticulture to be advanced in Sheffield. Mr. Lewendon put considerable energy into the work of securing what were undoubtedly very fine exhibitions, but did not receive the support that might have been expected. To him is undoubtedly due the credit of bringing about such shows as were never hitherto held in the district, the Rose Show alone of last year being of almost a national character, but that the committee were "wanting" was apparent to those who watched its work and progress, and what had become one of the principal shows of the year is now *non est*.

Arches, Pillars, and Pergolas.*

This subject could be dealt with from the descriptive, the artistic, or the practical point of view. I might merely give particulars of existing examples, say what I think they ought to be, or describe how to construct and clothe them. But it would be of little real value to speak at length of the pretty arches or beautiful pergolas in various parts of the country, and I will pay most attention to practical matters. First, however, let me say that the word "art" is used in far too loose a way in connection with flower gardening. Most people seem to think that they get an artistic garden if they simply leave out "Geraniums," and that when they have stuck in some arches, in however incongruous a way, their handiwork is complete. Often the arches are of wire; I prefer my ironmongery in the form of spades and hoes.

As an example of a modern artistic garden, I recently saw a straight walk spanned with a series of disconnected wire arches, each with an anæmic and decrepit example of Crimson Rambler Rose. Why arches in such a place? The natural and appropriate use of arches is to mark divisions of gardens. The proper thing for a straight walk is a pergola. Arches out of place, of the wrong material, and with unhealthy plants upon them are ugly and incongruous. When we have made up our mind that wooden structures are more suitable than metal ones we bring ourselves to practical questions. What is the best material? Where are we to look for it? What may we expect to have to pay for it? The best natural material is Larch, because it is straight and is a recognised market commodity. Timber merchants in country districts often stock larch poles about 22ft long, which, when cut into two, will make two uprights of suitable length. It is the truest economy to purchase a supply of long poles and cut them up. Do not let the vendor peel them; the bark is best left on, as the poles then have a more natural appearance. Larch is not a durable wood naturally, but if three feet at the bottom of the pole be peeled and treated with some preservative it would last for a very long time.

* Summary of a lecture delivered by Mr. Walter P. Wright, before the Royal Horticultural Society on July 11 1907.

Some might ask, Why treat three feet? Will not half that length suffice? Arches, pillars, and pergolas must be constructed properly, and in order to have them firm and secure from being swayed by the wind, which is very bad for the plants, the upright should be sunk into the ground nearly or quite three feet. With an 11ft pole there will be 3ft in the ground and 8ft out of it, which is the orthodox height.

A common preservative is creosote. This should not be used for green wood, as the latter will absorb too much. Seasoned poles should be secured. The creosote should be used cold, as then it has no deleterious action on the tissues of the wood. It is better to soak the ends of the poles in it for two or three weeks rather than to paint it on, and when treated thus the poles are well-nigh imperishable, but it is not innocent of causing root injury. A safer plan is to get ordinary coal tar, ready boiled, paint it

on the bottoms of the poles, and dust with sand. This answers well, and is considerably cheaper than creosote, enough for a considerable number of poles being obtainable for 5s. A third and still more economical way is to char the ends of the poles in the garden fire.

The question now arises: Where shall we get the material? Obtaining poles is not so serious a business as is generally supposed. They can often be got at timber yards in the larger country towns where good nurseries exist. Or they may be obtained at timber sales, which are held in many districts in autumn. For a 15ft to 18ft Larch pole, rough, one might pay 6d. at a sale, and for a 22ft pole at the timber merchant's 2s. to 3s. Even at the higher price, viz., 3s., one cannot say it is dear, as two 11ft poles are thus obtained for 1s. 6d. each. In districts where there are woods, dead Spruce may often be obtained cheaply by getting into touch with the forester, and it can be made good use of. So far as durability is concerned Oak is undoubtedly the best, but it is very expensive, 11ft posts costing 3s. to 4s. each. Even an Oak post needs the base dressing. When putting arches together one wants a certain amount of short, gnarled, crooked, rough material for the upper part. This is often difficult to get, but it can be obtained at many wood-yards in districts where there are large gardens.

A special word should be said about pillars. They form a most valuable feature in flower gardens. Clothed with Clematises, as at Kew, they are exceedingly beautiful, and for giving variety they are splendid. An excellent plan is to have three good pillars in a rough triangle, 3ft to 4ft apart, of good, stout material.

Pergolas are annually becoming more popular. I might describe a pergola as a connected series of arches. It may be constructed in various ways, and one of the most solid and attractive that I know of may be briefly described. It is in the garden of the mayor of Canterbury, Mr. Bennett Goldney. On the top of each of the upright poles that form the supports for the pergola is laid a stout piece of unpeeled Larch, about 18in long. On this meet the ends of three horizontal poles—two forming the continuation of the top side lines and the other connecting the two sides of the pergola across the walk. These three ends abut. On them lie the ends of two more poles—namely, the top diagonals. All these are securely spiked together, forming an absolutely taut, substantial, and homogeneous erection.

The ordinary pergola has the upright poles 8ft out of the ground and 8ft apart, but of course this can be varied considerably to suit individual requirements. The upright poles on each side of the path are connected by two lines of horizontal poles, and these in turn are connected with cross poles of lighter weight; 6in material for uprights and 3in or 4in for cross poles are generally used, but of course much more substantial structures are erected where cost is not the first consideration.

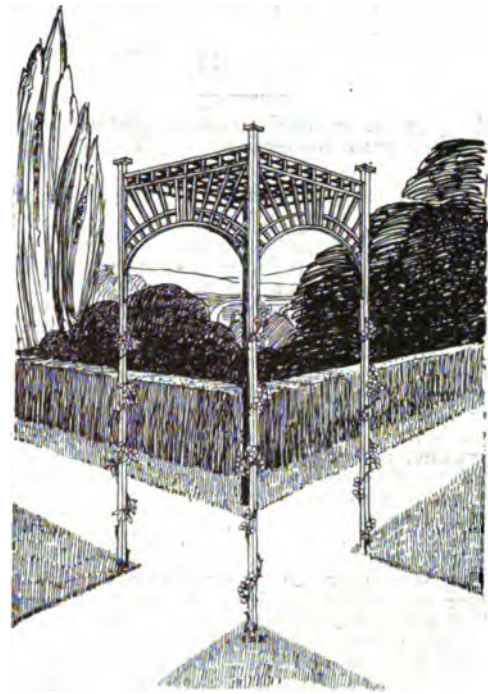
We now come to the important question of the most appropriate kind of plants for arches, pillars, and pergolas. One

cannot recommend the same kind of plants for all. For arches the first essential is plants that produce long canes, Crimson Rambler Rose being a good example. For pillars we want something that throws out vigorous lateral growths, a typical plant being the old but beautiful Rose *Félicité Perpétue*. For pergolas we require a blend of both. Of Roses suitable for arches we have Crimson Rambler, Euphrosyne, a splendid variety; Carmine Pillar (an almost ideal arch Rose), Cheshunt Hybrid, and Ards Rover. Roses suitable for pillars are *Félicité Perpétue*, the beautiful white-flowered variety *Rampant*, which is not half enough known, and Dundee Rambler, among the oldest sorts; whilst among the newer varieties, *Hiawatha*, *Paradise Rambler*, *Lady Gay*, *Stella*, and *Kathleen*, should provide almost ideal material. Penzance Briars are usually looked upon as hedge Roses, but they are valuable for pillars if the strongest varieties are selected and well cultivated. Lucy Ashton, Lucy Bertram, and Meg Merrilies are three of the best. By growing in deep, rich soil one gets many long canes, and I deal with some of these in a somewhat heterodox manner. Selecting two or three of the strongest and best ripened canes, I cut them down in the spring to within 18in of the ground; I cut others to within a yard of the soil, and leave the rest uncut, tying in their long laterals in a line with them. One thus gets masses of bloom from bottom to top. Lord Penzance and Lady Penzance are too weak growers to treat like this.

Among the Clematises we have splendid material for covering arches, pillars, and pergolas. A few of the best are Miss Bateman, The Queen, and Fair Rosamond of the patens type, which need little pruning in spring, and Jackmanni, its white variety, and the red *Madame Edouard André*, all of which need hard pruning in spring. There are, of course, a large number of other kinds of plants suitable for pergolas, such as *Ceanothus*, *Eccremocarpus*, *Kerria*, *Honeysuckle*, *Jasmine*, and the *Vitis*es.

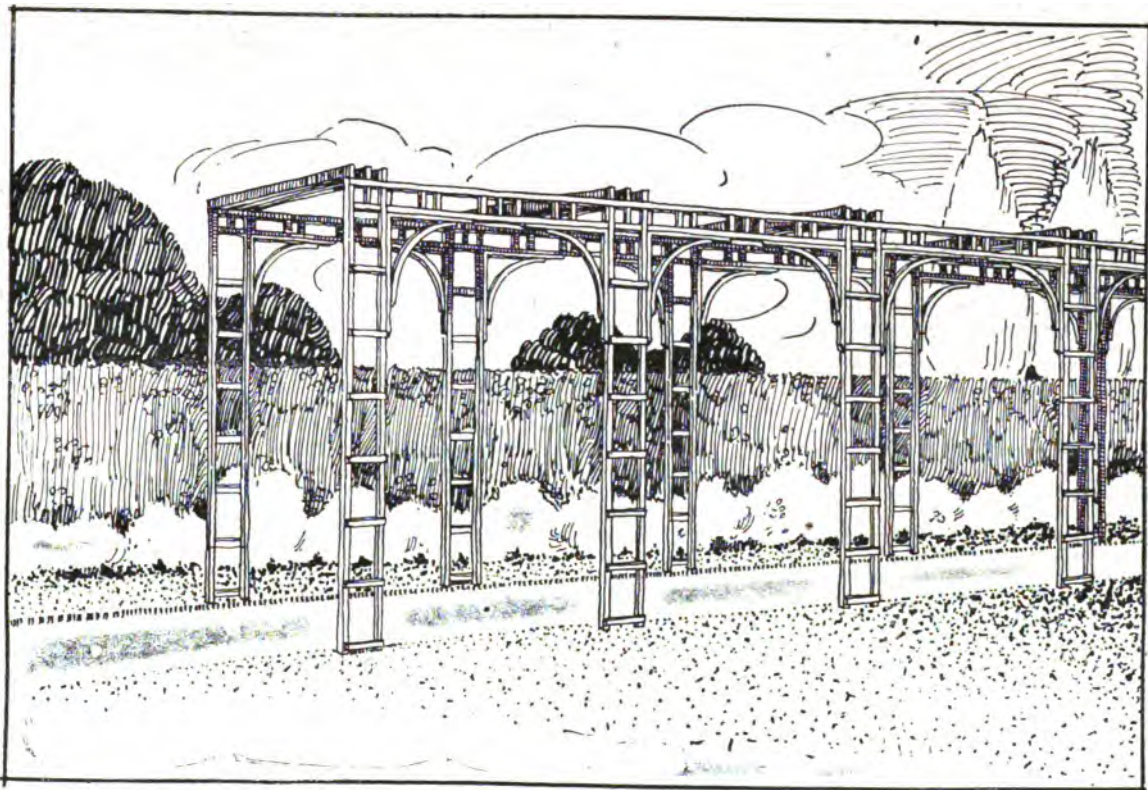
A word in conclusion about cultivation. No matter how well we construct our arches and pergolas we shall never get them well clothed unless we give the plants proper care and attention. Too often the framework is everything, the culture nothing. The soil should be worked two to three spits deep and well manured. Vigorous growth is then ensured.

In connection with the above article, by the courtesy of Messrs. W. Walters and Co., 16, Water Lane, Great Tower Street, E.C., we are enabled to reproduce some of their types of pergola. The "Graystoke" trellis pergola has been specially designed for the cultivation of climbing Roses and similar plants. It is made in sections, strongly constructed, and is very moderate in price, the cost of a pergola as above, 7ft wide, 7ft 6in high, with uprights 7ft apart, painted two coats, being



The "Crossfield" Four-way Arch.

6s. 6d. per yard run, carriage and packing free. The "Roundway" and "Merlewood" pergola-arcades are constructed of wood and iron as shown in the illustrations, and can be erected with ease. They are unique in design, and at the same time extremely moderate in price. Pergola-arcades, 100ft in length, with posts 6ft apart, cost £8 to £10. The distance between posts can be varied to suit requirements. Wrought iron rings to hold climbing plants, as shown in the drawing of the "Roundway," can be supplied at 1s. per post extra, allowing three rings to each post. All wood and iron work is painted two coats best oil paint, in green, light oak, white, or stone colour, but if either of the two last named colours are used the application of three coats of paint is recommended. The "Crossfield" arch is supplied in five sections with four posts, which can be quickly and easily joined together by means of a few screws.



The "Graystoke" Trellis Pergola.

Young Gardeners' Domain.

*. The prize is awarded to Mr. H. Gooch, Dover House Gardens, Roshampton, for his notes on "Palms."

Palms

Palms are among the commonest and most useful plants in cultivation, yet are seldom given the care and attention that is necessary to grow and keep them as they should be. There are few plants, if any, that get worse treatment. They are so useful for decorating purposes that they are often used in places where the surroundings are unsuitable. Most palms can be easily raised from seeds, which should be sown in pans or boxes and kept warm and moist till they have formed a leaf. They should then be potted up singly in small pots, and be placed in a house with a stove temperature, giving them plenty of moisture both at the root and overhead. Shade them from bright sunshine, as, although palms will stand the sun, they grow and keep their colour much better if kept shaded. If firmly potted in good heavy loam, and liberally fed with some good artificial manure, or liquid farmyard manure, the palms may be kept in very small pots for a long time without taking harm, only giving them a shift into larger pots when the roots get so strong as to lift the ball above the rim of the pot. When required for decorating purposes they should be gradually hardened off a few weeks beforehand. Much injury is caused through a too sudden change of temperature. If possible, avoid leaving them in rooms too long at a stretch, a fortnight being quite long enough in a dark room. If the air is very warm and dry, place the pots in saucers filled with water, as it is not always convenient to water them as often as they require it. For growing very large specimens, the palms should be placed in tubs, or they may be planted out in borders or beds. For this purpose select those varieties which are not likely to grow too large, as some, if given plenty of root room will soon become too large and tall for most houses. Some varieties, such as the *Geonomas*, *Cocos Weddelliana*, or *Thrinax Morrisii*, prefer leaf soil or peat, mixed with loam; but for most varieties good loam answers best. There are so many kinds in cultivation that it is useless to attempt to describe them. A few of the most useful for ordinary culture are *Seaforthia elegans*, *Cocos flexuosa*, *Trachycarpus excelsa*, *Kentia Fosteriana* and *Belmoreana*, and *Sanderiana*. The latter I think is one of the prettiest of palms when in a small state. Palms are subject to attacks from many plant enemies, such as mealy bug, scale, thrips, and spider, but by the continual use of the syringe, and an occasional sponging with some insecticide, these are easily kept in check.—H. G.

Early Cauliflowers.

This vegetable is a welcome addition at this time of the year, so a few hints on how to produce it as early as possible will not be out of the way. Firstly, the seed should be sown early in January, either in a box or pan, and be placed in an early Peach house, or some other structure that has an atmospheric temperature of 50deg to 55deg. When the seed has germinated through the soil, it is well to remove them to a cooler temperature, and where they receive the full benefit of the sun and air. The seedlings, when large enough to handle, should be pricked out into boxes and be placed as near the glass as possible to produce sturdy growth. About the third week in February they should be potted into 3in pots, using some old potting soil from under the potting bench, this being a very suitable texture, seeing that it often contains a large quantity of sand, making it porous. When potted they are best placed in a frame on the hotbed, admitting an abundance of air on all favourable occasions. By the middle of March it is advisable to remove them from the frame and place them in a cooler one to produce sturdy growth, and to prepare them for planting out. Towards the middle of April they may be planted out on a border facing the south. This should have been well dug and manured the previous winter to allow the soil to become mellow. When planting they may be either planted singly or triangularly, using some large flower pots to protect the former from frost during the night, and removing them in the daytime. The others should have handlights over them. As the plants grow and reach the top, place some bricks underneath until such times as they may be left off altogether. The best varieties for this work are Dean's Early Snowball and Early London. Another method to produce early Cauliflowers is to sow the seed in the open about September. Prick the plants out when large enough, and winter them in a cold frame. They may be planted out by the end of March, using some Yew branches to protect them from frost. These are not so safe as the potted ones, because they are likely to bolt, besides receiving a check. The handlight system seems the most preferable. It certainly requires more labour; but what is labour where the object

desired is obtained? If the weather is at all seasonable these will be ready for cutting in the last week in May or the first week in June.—C. EXLEY, Grimston Gardens, Yorks.

Bothy Life.

In lots of gardens the bothy chap finds himself situated two or three miles from any village, and perhaps several miles from the nearest railway station, making it appear as though he is having a terribly dull time. Despite this drawback, the life, as one gets used to it, is very pleasant. One travels from place to place, picking up knowledge that will be very valuable in years to come. If one is fortunate and finds a comfortable bothy, some pleasant and agreeable companions, and those in authority taking the proper interest in the young men's comfort, one can pass a very pleasant and profitable period. After the day's occupation is finished, and the washing up is done, one can take a share of the fireside, smoke a pipe to the heart's content, and let one's mind wander to the various subjects that form the daily work. Arguments can be indulged in with one's fellow bothyites that will pass the time away pleasantly. This usually ends with books being brought from their resting place, and the dispute is finally settled to mutual satisfaction and benefit. If, on the other hand, one gets into a bothy where the young men's comfort comes as a secondary consideration, and no interest is taken to make things comfortable, then it is that one feels the loneliness of being a few miles from the habitual haunts of men. How often is this the cause of young gardeners frequently changing their situations.—F. G., Lydhurst Gardens, Haywards Heath, Sussex.

[Please do not write across two sheets. Half the breadth is much more convenient to us all.—Ed.]

The Winter-flowering Stock.

A very pretty feature here of late is a nice batch of the above. The variety is Cutbush's Beauty of Nice, the colour being a fine light pink. In the hope that it will be of use and interest to other readers, I will briefly give the cultural details employed. The seed is sown in a pan the first week in August, keeping the latter well up to the light. I may add that this is very essential at all stages to induce sturdy growth. When large enough, the seedlings are put into 60's, and are placed in a cold frame which is kept closed and shaded till the plants are well established. They are then put outside in a sunny position under the greenhouse wall, or some other suitable spot, and when the roots show through the soil they are again potted on into 48's, the compost being: to every barrow load of turf half a barrow of clean horse droppings, half leaf mould, and a little lime rubble and sand, and a 48-sized potful of Clay's. They are kept outside till there is danger of frost, when they are brought into the Tree Carnation house, being placed on a shelf, well up to the roof. As soon as the flower spikes begin to show about the second week in February, feeding is started, and is given at every watering in the form of Clay's fertiliser, a little being put in the water-can and stirred till well mixed. The plants here are about 2ft or so in height, and well developed, and a very good percentage are double, the individual blooms being about an inch across. Coming as they do at a time when flowers are rather scarce, and added to this their fine scent, they are very acceptable, and I am sure they will give satisfaction to any who give them a trial.—F. CAVE, Holker Gardens, Cark-in-Cartmel, Lancs.

Acokanthera spectabilis (syn. *Toxicophila*), the Wintersweet.

This is a very distinct and desirable stove plant, and well deserves the name of Wintersweet. The genus is a very small one, and originates chiefly from South Africa, and is included in the order Apocynaceae. The plant under notice is a sturdy evergreen shrub, and a remarkably free bloomer, providing it has had proper treatment. The flowers are white and deliciously fragrant, and produced in clusters at the extremities of the shoots, and also in the axils of the leaves.

Propagation is effected by means of cuttings composed of young shoots taken off in spring. When these can be had in a sufficiently firm condition, insert them singly in small pots, and place in a propagating case. They will form roots in the course of a few weeks, and after growth has commenced pot them into 3in or 4in pots, using good peat, with enough sand to keep it porous. After they have started rooting into the new soil, pinch out the points, so as to induce the formation of additional shoots, and when the pots get full of roots the plants will require to be potted into a larger size, using this time a little good fibrous loam in addition to the peat. They should always occupy a position near the glass.

Flowers are produced when the plants are very small, but it is better to get good-sized plants before allowing the flowers to develop, and with this object in view cut out all the points of the shoots about the end of the following February, and after growth has commenced pot into a size 3in or 4in larger and treat as in the summer previously. In the following spring they will bloom profusely, during which time they can be kept

in a drier atmosphere. After the flowering period is over the shoots should be cut back a little, and when growth has again commenced the plants can be potted on again if required for large specimens. The plants are subjected to scale and bug, but the thickness of the foliage makes the destruction of these pests comparatively easy. The plants also do well if planted out in a border in a stove, and trained to a trellis, but in this position the flowers cannot be seen to an advantage.—F. G. C.

Delphiniums.

Among our hardy plants the Delphinium deserves one of the highest positions. The plants are propagated in several ways; the simplest is by division of the roots in spring, just after the growth has begun. If the plants are cut down in summer, the shoots that are produced in the autumn may be taken as cuttings, in pots, and placed in a cold frame all winter. Treated in this manner these plants will bloom the following summer. They may also be raised from seeds sown either in pans or boxes in a greenhouse or a frame, and when sown early will produce flowers the same year. Of course, they will be finer the following year. When the young plants are planted out they should be dusted with soot or lime to keep slugs away. The plants deserve high cultivation: a deeply dug border or bed with plenty of manure is essential, and with such preparation little more is required for a year or two, with the exception of manuring. They also require plentiful supplies of water in a dry season. The flower stems are very brittle, and if staking is neglected at an early stage, they are very difficult to deal with. When the central spike of bloom has faded, cut it out; the side shoots will continue to supply blooms for some time. Delphiniums look best arranged in clumps at the back of a border, or in a bed by themselves. There are many varieties, and no one need be without a show.—FRED HALL, Heaton Grange Gardens, Bolton, Lancashire.

Advice to Youngsters.

I was pleased to read the letter by Mr. H. Wood in the "Domain," page 160, referring to the young gardeners of to-day. I venture to make a few more remarks upon the subject, and trust they may prove of benefit to the more youthful readers of your valuable paper. In my opinion, there is room for a vast improvement in a large number of the young men of to-day. There seems to be too many "weeds" amongst them, who do not possess the energy and interest in their work which is necessary in this age. As one goes from place to place one can soon see by experience who will be most likely to have a successful career. I am sorry to say I have seen many youths turned away from situations just for the want of forethought, common sense, and self-respect. For instance, take a place where three or four are kept. The chief or head gardener may consider it his duty to trust the younger members of his staff with the charge of one or more houses; but often to his regret, for they forget to put shading or air on a certain house when necessary, the result being much damage to the article under cultivation. It is wrong for Tom or Harry to put ventilation on his houses, just because Jack or Bill has air on theirs, or because he heard the village school bell ring at nine o'clock, and that was the time he had air on yesterday. Then again, it is wrong for a young chap to wait until the chief tells him to put air on a certain house. It is his place to be always on the alert when the sun makes its appearance, or vice versa; and when he enters a house he should examine the thermometer, take the heat off or put it on, whichever it may be, and study whether there is anything in that particular house which needs shading or unshading, and so on. It is also necessary for a youth to be quick and smart over this most important item, or in such a month as March, for instance, when we get all kinds of weather, it would take him nearly all day to look after the ventilation, whereas if he is active he will be able to do a good day's work besides.—NORM.

Thunias.

This genus was formerly associated with Phaius, but they differ from Phaius by having long stem-like pseudo-bulbs and deciduous leaves, whilst those of Phaius are evergreen. Thunias have become very popular of late years, and are much more extensively cultivated, the reason being, I think, that the flowers are much better coloured now. Formerly *Thunia alba* was the only one grown to any extent, and it was never thought much of, as its flowers only half opened, and, therefore, its beauty was hidden. Thunias are rapid growers, and half the battle in growing them is to give them a long resting period in a dry cool house, and withhold water from them altogether. It is quite time now for them to be potted. Cut off all the old roots, and shake off the old soil; the pots should be well drained, and a good mixture for them is some rough peat and sphagnum moss with a little dried cow manure added, this being found to suit Thunias very well. When potted they require a strong heat and very careful watering; after a time, when they are growing freely, plenty of water must be given, with occasional waterings of weak liquid manure. *Thunia* is one of the few orchids that can be propagated from cuttings, the best way

being to cut off the top half of the old stems when the young growths are about 9 in in length. These should be cut into pieces about 4 in to 6 in long, and put in a close propagating frame, inserted in sand, and treated as ordinary stove cuttings until rooted. When rooted they should be potted off into small pots, using the same compost as recommended for the older plants. They are very showy when in flower in early summer. *Thunia Bensoniae* being very fine, with its purplish sepals and petals, its large deep magenta-purple lip, with a slight tinge of orange yellow at the base. *Marshalliana* differs from this in having white sepals and petals, and a white lip fringed with yellow. *Veitchiana* is a garden hybrid, and both parents—*Bensoniae* and *Marshalliana*—are shown splendidly in its flowers.—P. B. W.

Schedules Received.

Croydon Chrysanthemum Society; secretary, Mr. W. B. Beckett, Woodcote, Smitham Downs Road, Purley. The coming-of-age show will be held on the 27th and 28th October, in the Public Halls, George Street, Croydon.

Tonbridge Gardeners' and Amateurs' Society; secretary, Mr. Charles H. J. Baldock, Tonbridge. The Chrysanthemum and Fruit Show will be held in the Public Hall on November 11 and 12.

Highland Horticultural Society; secretary, Mr. William Smith, C.A., 4, Lombard Street, Inverness. The show will be held in the Market Hall, Inverness, on Friday, September 4.

Chester Paxton Society; secretary, Mr. G. P. Miln, Grosvenor Museum, Chester. The annual exhibition of fruits and Chrysanthemums will be held in the Town Hall, Chester, on November 11 and 12.

The Midland Counties Sweet Pea Society; secretary, Mr. Owen F. Trott, 104, Waterloo Road, Wolverhampton. The first show of this society will be held in the Drill Hall, Wolverhampton, on July 29.

Spalding Chrysanthemum and Horticultural Society; secretary, Mr. H. Harris, 8, Winover Road, Spalding. The 19th annual exhibition will be held in the Corn Exchange, Spalding, on Thursday, November 5.

Chippenhams and District Horticultural and Floricultural Society; secretary, Mr. William Small, Market Place, Chippenhams. The 38th annual show will be held at Hardenhuish Park, on Wednesday, August 26, when upwards of £230 will be offered in prizes.



Spring Feeding.

One is often asked when stimulative feeding should commence. It is one of the most difficult questions to answer, especially when the weather is so changeable as it is this spring, and with the cold nights we are experiencing. It is a matter that requires thought on the part of the bee-keeper, and a certain amount of caution must be practised. Perhaps the best guide is when the bees are carrying in a good supply of natural pollen. Some good results are made with the aid of artificial pollen, but this requires the guiding hand of the expert, and is not to be recommended as a common practice. Generally speaking, it will be wiser to defer stimulative feeding if there be any doubt in the matter, for it is one of the few things we can afford to be a little late in, rather than too early. If the stocks are in need of food give a little cake of candy to tide them over until one feels it is safe to give syrup.

How To MAKE SYRUP.—Use about 5 lb of lump or granulated sugar to each three pints of water. Heat the water well before putting in the sugar, then drop in the sugar, stirring well, until all is dissolved. It is not necessary to boil it, and care must be taken not to burn it. Place the warm syrup in the ordinary jam bottle, taking care to fill to the brim, cover with several thicknesses of muslin and tie down securely. Place the inverted bottle over the feed-hole and cover up warmly, so that no internal heat may escape.

ECONOMY IN FEEDING.—If the bees have a good supply of food, they will not take flights on rough, cold days. During the stormy days of a cold spring a large number of bees are chilled while out, and die. Thus not only do the hives of well-fed bees become strong by reason of the increasing population, but they do not lose so many by reason of death. Where a large quantity of syrup is required, it is often difficult to find a suitable vessel in which to make the syrup. Where there is an extractor the difficulty is soon surmounted. Having set aside the correct quantity of water and sugar, set the machine in motion, and pour in some water and a small quantity of sugar, and as it dissolves add more water and sugar, working the whole time until all is dissolved. Take care not to put the sugar in first, all the water if you like.—HYBLA.



Hardy Fruit Garden.

FRUIT PROSPECTS.—It is far too early to give anything like an authoritative forecast of what the fruit crops may be like during the coming season, but a few words as to prospects as standing at present may not be out of place. Most of the Plums—Monarchs, Czars, Prolifics, Belle de Louvaine, and Victorias—are showing very full of fruit buds; Egg Plums are apparently rather thin here and there, but with a favourable spring there should be ample crops of these. Apples that we have seen promise well, and Pears in most cases have an encouraging appearance. Cherries, as usual, are very full, and so far as can be judged, small fruits will be satisfactory, provided frosts are not too severe during the flowering period. So far the outlook is distinctly pleasing, but it is a long way yet to the first week in June.

STRAWBERRIES.—We still venture to recommend mulching these with strawy material from stables as it can be procured. In some quarters the practice has been stigmatised as a dirty one, but we shall not agree with this so long as the material is used sufficiently early. Before placing the litter in position, the grower should make sure that his beds are free from weeds, and have them well hoed in readiness. For many years we have used this litter, and can see no reason to depart from the practice; the litter is more easily applied than fresh straw, and any impurities it may contain are washed out long before the fruit is ripe. Critics might as well say that manuring the soil the plants grow in is a filthy practice.

GOOSEBERRIES.—In view of the disastrous effects of the disease known as American Gooseberry mildew, it may be advisable for growers to dust their plants, now they are just starting into growth, with flowers of sulphur. We believe this, if properly carried out, will be found just as efficacious as some of the more complicated remedies advised. Those who cannot accept this old-fashioned remedy may as well spray with one of the fluids those possessed of infected plantations are compelled to use by the county authorities. Prevention is better than curing, and it is better and far less expensive to keep the disease from attaching the bushes, than to be compelled by law to combat the trouble after it has obtained a foothold.

PEACHES.—Leaf blister in some districts is sure to prove more or less troublesome on wall trees. We have found the disease far worse to deal with when a period of cold winds has continued for several weeks after flowering has been completed. We can only advise the removal of the worst foliage, and burning this. Spraying with sulphide of potassium and soft soap may help to keep the trouble in check and prevent the trees from becoming defoliated to a serious extent.—J. W., Evesham.

Fruit Culture Under Glass.

FRUIT TREES IN POTS.—Where trees are forced for early supplies the fruits will now be set, and thinning may be done. Thinning must be governed by climatic conditions; and some kinds of Peaches drop their fruits more than others. With trees kept stopped during growth, very little pruning is required, and what is needed should be deferred till the fruits are formed, as then it is an easy matter to regulate the growth and the crop. As soon as the fruits are swelling freely, food may be given in the shape of a good fertiliser or liquid manure in a tepid state.

LATER TREES.—Those just coming into blossom will need a more buoyant atmosphere, and the blossom may be daily pollinated, and where a hive of bees can be placed in or near the house to do the work, it is a great advantage. Trees for succession crops should be kept as cool as possible, and be given ample ventilation. Of course, no artificial heat will be required, but I should add that the earlier ones in blossom, in wet, dull weather, should get a little artificial heat to dry the pollen, and as soon as the flowers fade, freely syringe twice daily, and should the least sign of green or black fly have obtained a footing during the setting, lose no time in fumigating.

CHERRIES.—These are often given a separate house, and few trees give a better return. They have now set their blossoms; and with more sun heat, air must be freely afforded, and even at night it is well to give a small amount of air on the top ventilators. Cherries in a humid atmosphere often drop their fruit.

MELONS.—The progress made during the past few days has been great, and the growths of early plants have nearly reached their limit, and require stopping. The side growths up to the trellis should be pinched to one leaf, and above the trellis stop as required. When early fruits are desired it is well to stop the plants soon. At the same time to secure a good set before allowing single fruits to swell away, three to four on a plant should be allowed, and these going away freely, all others may be removed. Top-dressing at this stage will be required. Syringe the plants twice daily, and damp all parts of the house frequently. Feed with liquid manure or a fertiliser as the fruits swell.

LATER AND FRAME PLANTS.—The successions should now be planted, and with Melons it is well to keep the collar of the plant above the soil. The earlier directions as regards planting and soils will be applicable. Seed should be sown for successions as required. Plants grown in frames will soon be ready to plant out, and the work must be governed by the temperature of the bed. At the same time by early planting the seedlings will go away freely. Cover the glass at night to retain warmth, and it will be well to keep up the linings to retain bottom heat, and to ventilate carefully in dull weather.—G. W., Brentford.

The Plant Houses.

HANGING BASKETS.—In houses of any size these will be found very useful and attractive. A purpose for which they are particularly adapted is to hide the bare outline of the roof, where it is not relieved by climbers. Plants more or less pendulous in habit lend themselves most readily for the purpose. There are, however, others which, with a little stopping and training, will make equally beautiful basket plants. The most convenient places for hanging the baskets are over the paths. If suspended over the stages the water dripping from them would damage the plants beneath. Occasionally this is necessary, and the baskets must then be taken down when watered. Baskets made of wire are the ones most generally employed, although those made of wood, usually teak, are favoured by some, especially for ferns. It depends on the habit of the plants whether it is necessary to place any of the small plants between the wires, round the sides of the baskets. Unless fairly pendulous this is advisable, otherwise it will take some time to clothe the baskets. Moss, fibre from peat, or loam, form suitable materials for lining the baskets to prevent the finer soil falling through. For the stove and tropical houses, in addition to Nepenthes, most of the plants available are valued for their foliage. Asparagus, ferns (notably Davallia, Nephrolepis, and Polypodium), *Aschynanthus Lamponga*, *A. pulchella*, *A. zebinus*, *Columna speciosa*, and *Episcia cupreata*. Plants suitable for hanging baskets in the greenhouse are much more numerous and varied. It is only possible here to mention a few of the best, which may be made up at the present time. *Begonia glaucophylla*, *B. Worthiana*, *B. Knowsleyana*, *Achimenes*, *Fuchsia*, *Clinanthus Dampieri*, *Schizanthus pinnatus*, *Thunbergia alata*, *Torrenia Fournieri*, and Ivy-leaved Pelargoniums.

CUTTINGS TO INSERT NOW.—The present is a suitable time to put in cuttings of many winter-flowering plants. Inserted in sandy soil in a close propagating frame they will soon root. *Peristrophe speciosa*, *Jacobinias* in variety, numerous *Begonias*, *Reinwardtia* (*Linum*) *tetragyna*, *R. trigyna*, *Vitis* (*Cissus*) *discolor*, *Salvia splendens*, and *Centropogon Lucyanus* are some of the most important. It is advisable to defer inserting cuttings of *Coleus thyrsoides*, *Moschosma riparium*, and *Leonotis Leonurus* till a later date. Better results are obtained with these by restricting the growing season, otherwise they become tall and straggly.

THE SHOW HOUSE.—Plenty of material is now available to keep this house gay. Many of the plants having been forced, the flowers will be tender; Tulips, for instance, soon fade unless shaded. An endeavour should be made when arranging the house, if of sufficient size, to place all the plants together in one part of the house which require all the sunlight possible. New Holland plants and Carnations may be cited as instances. The blinds can then be let down on the remainder when necessary.

GENERAL REMINDERS.—Introduce a few plants of *Euphorbia fulgens* (*jacquiniiflora*), and *E. (Poinsettia) pulcherrima* which have been resting into heat to obtain cuttings. Remove the tops of *Chrysanthemums* it is intended to grow as bush plants. If these are inserted as cuttings they will make nice plants for flowering in 6in pots. Put in a few cuttings of *Gardenias* for flowering next spring. Pot off singly in small pots seedling *Celosias* and *Cockscombs*. Pot on *Caladiums* requiring it, and start more tubers. Take off the tops of the winter-flowering *Carnations* rooted early in the year, and now in small pots. It is no use simply removing the tips of the shoots, they must be topped back to fairly hard growth.—A. O., Kew, Surrey.



TO CORRESPONDENTS

All Correspondence relating to editorial matters should be directed to "THE EDITOR," 12, MITRE COURT CHAMBERS, FLEET STREET, LONDON, E.C. Persons sending manuscript or photographs, when not specially requested by the editor, and making no demand for remuneration, are presumed to solicit publication without payment. In order that no misunderstanding may arise, and in order to secure the return of their contributions, contributors should state the fact that they expect remuneration, and in all cases, even when contributing voluntarily, correspondents should enclose a stamped envelope if they expect their enclosure to be returned.

WATER LILIES IN TUBS ("J. J.").—See page 311.

WATER LILIES FOR POND ("Wanderer").—See page 311.

CONCRETE STAGING (W. M. B.).—We published all the particulars known to us. Perhaps if you write to Mr. Garland at the address we published, he would satisfy your inquiries.

NEPENTHES AND ANTHURIUM PROPAGATION (A. Y.).—Nepenthes are easily increased by cuttings, which should be singly in small pots in sphagnum moss or sand and fine pots-herds, or they may be inserted in a bed of cocoanut fibre. In any case they must be kept in a close humid highly heated pit until they have produced roots. The Anthurium is propagated by offsets kept close for a time in a propagating frame. We cannot understand your question relating to the greenhouse. Peach trees would succeed if well exposed to light.

BROCCOLI FOR SUCCESSION (Young Subscriber).—To have a succession from September to June sow Walcheren early in April, and at the same time Veitch's Self-protecting, Back-house's Winter, and Snow's Winter White. The heads of the three last will be destroyed if the weather be severe, hence the plants should be lifted when about the size of a teacup, and laid-in in a pit or frame where they can have protection as required. Sow about the middle of April Veitch's Spring White, Cooling's Matchless, Leamington, Lauder's Goshen, and Model. If the spring be early you will require to take up some plants of the last two varieties when the heads are well formed, and lay them in on the north side of a wall to retard them, as the heads will not last until June in a forward season.

ROSES ON THEIR OWN ROOTS (E. B. L.).—It will not answer to divide your dwarf trees into "five or six pieces" unless they are divided below the soil so as to retain a number of roots to each portion. If they are dwarf-worked plants make cuttings of the growths of the current year immediately the flowers have fallen. Take the cuttings off with three joints, cutting transversely below the lowest leaf, and insert them in a shady border and cover with a handlight or frame, which should be kept close until the cuttings are growing freely or have rooted, when air should be freely admitted. Or cuttings of firm wood of the current year may be inserted on a shady border in September, and the following April they may be carefully lifted and planted in good rich soil.

CEDAR OF LEBANON (J. H.).—It is regarded as rather a slow-growing tree, but when planted in suitable soil it makes very free progress. Mr. Robson has recorded the following sizes of a group of eight trees in Linton Park, Kent, which at the time of their measurement had been planted forty-four years. Girth of stems at 3ft from the ground, 9ft 3in; 8ft 11in; 8ft 8in; 8ft; 7ft 11in; 7ft 6in; 7ft 5in; and 6ft 6in. The spread of branches of the largest-stemmed tree was 69ft. On page 11 of vol. xxvii. is an illustration of a Cedar of Lebanon at Normanton Park. This tree is nearly 100ft high, and is supposed to be about two hundred years old. Cut back the old Yew when it commences making fresh growth in the spring.

GOOSEBERRY POLYPORUS (F. L.).—The twig is affected by the Gooseberry Polyporus (*Fomes ribes*), a parasitic fungus not uncommon on the stems of old Gooseberry and Currant bushes, where it grows in an imbricated manner, several specimens growing above each other on the stem of the host. The fungus is perennial, and as a rule only grows on old plants, but yours is an example to the contrary. Such affected twigs should be cut away and burned, and the bush would be advisably dressed with quicklime in the autumn as soon as the leaves are all down, as there is a considerable amount of lichenous overgrowth that would be destroyed by the lime dressing, this being done while the bush is damp with mist or from recent rain. In the case of very old bushes the better plan is to remove and burn them, replacing by young trees, but on new ground.



Provision for the Future.

The wise man lays by a store. The fool lives from hand to mouth. It is only when paying time comes that the fool begins to reflect. Then he makes resolutions, grand ones, only to be broken again and again. If it were not for the shiftless, the provident might often look in vain for a market, so therefore we suppose in the scheme of the Universe the fool has his use and place as well as the wise man.

Well, we are just now enjoying a great plethora of good fresh eggs; indeed, some days we feel as though we saw rather more of them than we could wish. Even in Lent we may tire of the everlasting egg served as a clever cook will serve them, in a variety of ways all more or less pleasant. We grudge the price that we obtain for our surplus. It seems wholly inadequate when we remember the big bills we have paid during the long winter for food of all description, when, with the exception of a "faithful few," our feathered friends were enjoying a life of high luxurious ease at our expense. Our hens are given to taking long holidays just when they might, if they only would, be filling our baskets with eggs, and our pockets with gold. It is, of course, because we fail in judicious management, no doubt; but if we fail, we have the satisfaction of knowing that the majority of our friends fail likewise, and it is always a comfort to know that we are not alone in our shortcomings.

Well, how to deal to the best advantage with our surplus eggs. If of good, pure, and special breeds, set and hatch out future fowls for your own use; that is the first step to take; only here again how often we are handicapped by the frolicsome fowl who objects to take upon herself her maternal duties. It is often only the common or barndoor variety who is "broody" when you most need her. And now we, of course, don't allow any such mongrel to exist on our premises. If we have a few, they are kept discreetly in the background, just the Cinderellas of the establishment, and we are satisfied. Set all you can in good time, and get them out of the way. It is the early bird that gets the worm, and it is the early chick that does best. The early eggs, that is, say, of March, hatch out stronger than the January ones, or those of later spring or early summer. They get the pick, too, of the freshest green food, and the run is clean and wholesome after the rains and frosts of winter.

Then, provided you have a popular variety, there is the market for "clutches" of eggs. Being presumably "selected," they always command a higher price than the rank and file. Then with the rank and file there is nothing so good as the pickle tub, and pickling now has become a fine art. The beauty of the process is its ease, and better still, it is a dead certainty. With waterglass the veriest novice can be successful. All are prizes at this game; no blanks.

Be it understood, though, waterglass preserves, but does not regenerate. Whatever is committed to the depths of the pickling tub comes out exactly in the same condition as when it was put in. Thus, a fresh egg comes out apparently, and to all intents and purposes, a fresh egg; and an election egg comes out equally ready for the hustings. Whether the embryo chick would come out still with the spark or germ of life in it is rather uncertain. We have heard of year-old eggs being successfully hatched. We have never tried the experiment, and therefore until we do we would rather not brand others with the mark of Ananias.

There is always a percentage of eggs with weak shells; those are best kept out of the tub. The pressure above and below may prove too much for them; and a smash only messes the rest of the lot and causes them to look unfanciable. The same applies to any egg that may have an accidental crack. The beauty of the waterglass is, first, its cheapness; secondly, the ease with which it is prepared; and thirdly, the fact that, standing in the coolest place in the cellar, the eggs may be added as they come in daily, till the utensil is filled, and no injury accrues to first or last additions. The ingredients are the waterglass and boiling water; 10 per cent. of waterglass is the proportion some recommend; but we use less. Must we say that this mixture should be quite cool before being used? We have heard of plum puddings being boiled minus the cloth, with curious results, and what would happen to eggs should they be put into this boiling, or nearly boiling, mixture we should not

like to say. Neither will we insult our readers by suggesting that the two ingredients be well mixed. We think that will occur to every one.

We should not recommend haste in transferring the eggs from basket to pickle pot. We try to pack them carefully, and we remember to allow at least a two-inch layer of mixture over the uppermost lot. Beyond this we do nothing. We took out our last egg of March, 1907, this week, and our jars are ready for a fresh supply. Jars, for families; but where the consumption is great, or where there are plenty of winter customers, barrels are not bad things to use, or what we call scalding tubs or salting tubs. It is always best to utilise existing receptacles; never go to great initial expense. It is wonderful how ingenuity will suggest contrivances. Some people are never happy unless they buy the best thing in the market; they never think a penny saved is one gained. These are the people who are the best customers of implement makers and the like. They act as pioneers of novelties. They don't stop to consider whether they really need the article; whether it is adapted to their particular circumstances; whether it is too complicated in use for other than management by a skilled workman. It is new, and therefore they must have it; and they never learn from experience till the time comes when money being exhausted, they look at their collection of curiosities and wonder how it is they have been such fools.

There is a question, the answer to which we should much like to see. Given ten years from now, and we shall have got the answer; but that is a long time to wait, and we want to know to-day. From what class of men will the new small holder be drawn? And how is the choice going to be made? We are presuming that everyone who applies will not be suitable, but what are going to be the distinguishing marks of suitability? Will this unthankful duty devolve upon the councils? We see the Act says, "He or she," so we suppose either sex can claim the promise of land. These people have to satisfy the councils that they have ability to cultivate properly the small holding for which they make application. Now, of what does the ability consist?

In the first instance we should say the necessary knowledge of at least the rudiments of agricultural lore. Will the candidate be submitted to some sort of competitive examination, or can they present testimonials as to their qualifications? We generally find that those who know least think they can do most, and probably would eagerly grasp at the largest holding within reach.

Then putting aside knowledge, we come to the next question, that of funds. Money is easier to find than wisdom; it has been so since the days of Solomon. Without money there can be no proper cultivation of land; and who is going to say how much money is needed? We fear this money question will go far to exclude some of the best men—men who have been born and brought up on the land, and who understand the needs of the land thoroughly. These men have our sincere sympathy, and in their case the only hope seems to be from the credit banks. These, unfortunately, are not scattered over the length and breadth of the country, being few and far between, and after all, this millstone round the neck is a fearful burden. There are those men who, in service, have saved money; but the very fact that they have saved money shows that they are no longer young, or, at least, not very young, and unless they have children who can assist in the work, it will be a very uphill undertaking.

We expect there will be many applications from the small tradesmen in the lesser towns and villages; men who think that the possession of a little land will be an aid to them; and so it will in many cases. They, too, will have money at their back. The first men will be butchers and horse dealers. A butcher is always a bit of a farmer, and to him the accommodation of land is of immense value. A butcher soon blossoms into a cattle dealer; and from a cattle dealer to a bona fide farmer is but a step. We have been struck with the fact that for many years the rising farmer has invariably begun his career as a butcher. The butcher says to-day that his trade is very much "cut." It may be so, but, at any rate, he always appears to have plenty of the "needful," and is ready for any little land enterprise that may turn up. We don't quite see why the provision of farms for people of this class should be made a national undertaking.

Then about the town-man proper, or the town-woman; will it suffice if they prove to the satisfaction of the council that their means are adequate, and that they are prepared to employ skilled labour. Or will it be held essential that they themselves must act the part of cultivator? If they have the money they might be left to find their own farm or small holding. Money can usually procure the coveted possession. When a farmer leaves his farm he cannot always obtain what he wants exactly in the identical neighbourhood that he wishes. He possibly has to move far afield; but the small holder is most sanguine that such is not going to be the case with him. He confidently

hopes and expects that the land that he wants will, by some sort of conjuring, become his without any regard to the wishes or feelings of the present possessor.

How it is going quite to be done, he would be at a loss to say. But in many cases we fear great disappointment awaits him. The council or other authority will have their work set to obtain the offer of property, and it is an impossible thing that they will be able to suit all tastes. We should only like to see some of the disappointed grumblers put on the executive, so that they might have some faint idea of the difficulties that lie before the most able councils.

Some of us will remember a book by a well-known writer entitled, "What will he do with it?" We are inclined to ask the same question now, and we wonder what will be the fate of the occupier and state of the land after a few years "farming" by many of the men who to-day go so lightly and cheerfully to take up duties and responsibilities for which they are eminently unfitted.

Work on the Home Farm.

Farm work proceeds slowly, and not very satisfactorily. Spring work can never be carried out rightly in the absence of the sun. We know he is there, in his regular place, but we should like to see more of him.

Farmers keep drilling barley because the season has come, but we do not believe in drilling in such a pouring rain as we saw a drill working under yesterday. If we cannot have a dusty seed-bed we must make shift with a sticky one, but we yet have faith in the value of March dust. We were discussing the question with a successful farmer the other day, and he was inclined to ridicule the old proverb about March dust as being a fable exploded. But he farms land which can scarcely be treated wrong, and which is apt to grow crops too big to be profitable. Therefore a rough and ready way of seeding may, in his case, reduce the bulk of straw and keep the crop within bounds. We notice that the same farmer is much more particular as to his seed bed for potatoes.

Drilling may be done under difficulties, but dressing fallows is almost labour in vain, and the horses so employed would be better in the stable or at other work. Twitch and stubble which is already worked out would be best raked together in heaps, and burnt as soon as it is dry enough.

Other farm animals have been very healthy, but horses are having a bad time. Influenza has been rife, and several spring sales have been spoilt because the horses were in almost unsaleable condition. Buyers do not care to risk introducing infection into their stables.

Touching on the sales, there has been a wonderful demand for sheep of all kinds, and also for growing young cattle. Prices for the latter have been almost prohibitive at some sales. Every year it appears more evident that the rearing of cattle in this country is neglected. No doubt the increased demand for milk has encouraged farmers to sell their calves for veal, instead of rearing them; but where calves can be bought for 25s. or 30s. they will pay to rear on separated milk.

The lambing will prove a record one generally. Everywhere the fall of lambs is heavy, and the loss small. In view of the great importance of our flocks to both farmers and the public, the successful season is matter for much mutual satisfaction.

Trade and Miscellaneous Notes.

Hugh Low and Co.

Messrs. Hugh Low and Co., Bush Hill Park, Enfield, write: "We beg to hand you a copy of our new Carnation list with coloured plate, showing colours and forms of some of the newer introductions amongst these universally popular flowers. We are also including with this issue plates of the popular new Polyantha Rose, Baby Dorothy, and our new hardy, close-climbing climber, Ampelopsis Lowi, both of which plants have, we believe, great futures before them."

Messrs. Barr's New Catalogue.

We have had pleasure in reviewing Messrs. Barr's newly-issued "Catalogue of Hardy Perennials, Alpines, and Aquatics for 1908." On pages 9 to 11 we find a select list of really good novelties and rarities. We would also draw attention to pages 2 to 6, which give valuable information to amateurs as to the best hardy plants for different purposes, such as for shady or sunny borders, wild gardens, rock gardens, &c. We do not think that such information is given in any other catalogue. On pages 7 and 8 is a reference list of popular English names for all the plants offered in the catalogue. Among the various cultures at Messrs. Barr's Surbiton Nurseries they make a speciality of Delphiniums, Irises, Paonies, Phloxes, Michaelmas Daisies, Christmas and Lenten Roses, Pyrethrums, and the beautiful new hybrid Water Lilies (described on page 83).

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Journal of Horticulture.

THURSDAY, APRIL 9, 1908.

Note-taking.

It is difficult to estimate the value of well-kept notes, or to show the great part they often play in the gradual advancement of youthful aspirants in innumerable professions and trades. To the lawyer, the doctor, the scientist, the engineer, and the inventor, notes are of supreme importance, for by their aid they are enabled to climb step by step, till a commanding position is reached, and the road made easy for the acquisition of those crisp "five pounders" which nobody despises.

Yet even notes—the written ones—have their drawbacks, especially when they happen to be the shorthand notes of a reporter who unexpectedly puts in an appearance at a meeting in some remote district where the local politician is addressing his constituents. Notes of this type have sometimes brought disaster to the politician. But let us away with politics and come to horticulture—that restful pursuit in which all may unite in a bond of common brotherhood. The old and young, rich and poor, may find in its pursuit an unfailing source of interest.

To the would-be successful horticulturist careful and systematic note-taking has become a matter of absolute necessity, because it is only by studying closely the behaviour of plants and crops under varying conditions that one can form clear opinions as to the best course to adopt. The most successful exhibitors of the day know full well the value of notes. They know that different varieties, as well as different species of plants, have their peculiarities, and that it is impossible to remember all these distinctions without the aid of notes. Hence the man who has notes, taken in previous years, to refer to is able to avoid a repetition of mistakes, and thus gradually presses on to a higher degree of cultural excellence. The orchid grower, the Chrysanthemum grower, and the

READERS are requested to send notices of Gardening Appointments or Notes of Horticultural Interest, Intimations of Meetings, Queries, and all Articles for Publication, officially to "THE EDITOR," at 12, Mitre Court Chambers, Fleet Street, London, E.C., and to no other person add to no other address.

No. 1450.—VOL. LVI. THIRD SERIES.

Grape grower have in the past done much to achieve cultural successes by the aid of notes, and now the Sweet Pea specialists are rapidly becoming record-breaking note-takers in their attempt to unravel the peculiar likes and dislikes of their captivating pets. Truly the grower of a couple of dozen varieties of Sweet Peas need not be short of material for the formation of voluminous notes, which will provide plenty of food for reflection, as well as give ample opportunity for the display of ingenuity in forming plans for another year. The vegetable grower, too, may find many opportunities for note-taking and for turning them to account when they have been taken.

In this connection it is always interesting to record the dates of sowing and of gathering various crops, and of noting the fluctuations which occur from year to year in regard to the time taken for various crops to mature from the date of sowing or planting. It is then not difficult to strike an average, and thus be able to accurately time crops which are required for special events. Tables have been made giving information of this description, but soils and localities, as well as seasons, have much to do with the rapidity or the tardiness of growth. Notes taken on the spot are therefore the most reliable as well as being of greater interest. Note, too, the time which elapses between the sowing of seeds of various crops and the appearance of the resulting plants above the soil; the nature of the weather at the time, and its effect on the progress of crops. Where Onion and Carrot grubs have proved troublesome, the dates at which they were first noticed should be recorded, also the dates when the flies were seen. Those who are not familiar with the latter should, by the aid of coloured illustrations, endeavour to recognise them. Quantities of different crops obtained from a given area of land are always useful records to take, and those having a commercial turn of mind may with advantage value crops at the market rates obtained in the neighbourhood; and if in conjunction with this the cost of the seed and manures used, and the labour spent in cultivation is carefully calculated, some idea of cost of production and of profit or loss is obtained. Often this furnishes a sufficient idea to show that a change of method is necessary to ensure profitable cultivation.

In connection with fruit culture it is an excellent plan to jot down the dates at which the different varieties of Apples, Plums, Pears, Peaches, Nectarines, and Apricots flower in the open air, also to record any frosts which occur during the flowering period; and later on to note what effect such frosts seem to have had on crops produced. The dates on which various fruits ripen, and the effect of bright and dull or wet periods upon the progress made at various stages, are points of interest and value worth recording. Indeed, among other things, a careful record of the weather day by day should always be kept.

Every young gardener should keep a diary and make careful entries of whatever work has been done in the special department he or she happens to be engaged in, and if possible, by collating with the young men in other departments, to gain a summary of the daily work done in each department; noting also if any of the work has been unduly delayed, or has been done somewhat earlier than usual. Records of this description are extremely valuable for purposes of reference in after life, and when responsibility comes they may prove the means of helping young head-gardeners over many a difficulty.

Problems in regard to the shanking and colouring of Grapes may sometimes be gradually elucidated by carefully kept notes; at least that has been the writer's experience. Where trouble has been rife in regard to shanking, note the condition of the Vine roots, and of the soil at various seasons, times of watering, stopping the laterals, and method of ventilating, and proper remedies will invariably suggest themselves. Equally valuable information may be obtained by similar means in regard to the colouring of Grapes, as local conditions often have much to do with the ease or difficulty of securing perfect finish.

These suggestions are advanced with the object of calling attention to the value of note-taking, and to the vast possibilities which lie before the young men who will studiously arrange and record the knowledge gained day by day. Such work also has the advantage of leading one to acquire clear and concise methods of thought-expression, as well as to develop one's powers of observation. Both are estimable qualities which the gardeners of the future will need in a marked degree.

The London County Council having stipulated that all of their gardeners and public parks' employees must hold the Royal Horticultural Society's certificate, the men who sat for the R.H.S. examination last January are **Parks Employees' Examination.** naturally mainly from around London. It is to be hoped, however, that parksmen from other cities and towns will feel constrained,

or will have sufficient personal ambition to wish to sit at next year's examination on January 11. The examiners' report for the third annual examination, held on January 13 last, is as follows:—As previously, the examination was partly written and partly *vis à voce*, occupying three hours and twenty minutes.

It was held at the society's hall in Vincent Square, Westminster. One hundred and thirteen candidates entered their names. The results of the 1908 examination are highly gratifying to the examiners, and will be equally so to the council of the society, and to the London County Council, at whose suggestion this annual test was started three years ago to stimulate intelligent observation and interest in public garden work. While it is to be expected that each year's results will show an improvement on the year preceding, the pronounced and rapid progress shown in the present examination was beyond our anticipation, and therefore the more encouraging to the examiners and the examined alike. Firstly, the *vis à voce* questions were, by most candidates, excellently answered, and high marks all round secured. This prepared the examiners for a similar excellence in the written section, but though this ideal was not quite realised, nevertheless, the worked papers were decidedly in advance of former years. Still we are confident that an even higher standard of excellence should be attained; and, that future candidates may have some guidance in preparation, and may know how their predecessors have failed, the following criticisms are offered on this year's papers, which, with the remarks made by the examiners in 1906 and 1907, and issued with the report for those years, should prove helpful.

The examination exposed the difficulty surrounding the use of botanical names and terms, and these are necessary because the English names differ so essentially in one part of the country from those in common use in another, that, unless the botanical name is also given, we can never be sure what we are really talking about, or that we mean the self-same plant. If candidates would every day look up, say, two or three names of plants with which they come in contact, and commit them to memory, it is astonishing how large an acquaintance may be made with botanical names in a short time, and how easy the acquirement of them soon becomes. Again, candidates should take care to keep up their elementary school education. This most fail to do, as proved by the answers to questions 12, 13, and 14, which only involved some very simple arithmetic. The majority dared not attempt the questions, though they were very easy, and, of those who did, many failed in accurate working, and in question fourteen omitted to divide an otherwise correctly figured answer by three and a half, confusing the term "square yards" with "yards square" and so obtaining a numerical result far in excess of the correct one.

Again, marks were largely lost by the want of accurate comprehension of the questions. For instance, in question eleven, the term "deciduous" was frequently ignored, and, instead of a list of only "deciduous" trees being given, evergreens were freely included. Perhaps this was still more marked in question fifteen, which asked "What effect has frequent surface hoeing on trees and shrubs growing on the land?" In answering this, much information was given as to the influence of surface hoeing on the soil, but the point of the question—the effect on the trees, &c.—was quite overlooked. It is so necessary in all examinations that the questions be closely scrutinised, and in reading a question the candidate should give sufficient time to really grasp its meaning, and to understand just what the examiners want to know.

Handwriting and accurate methods of expression still need attention; both mean practice, and, as regards the latter, one of the best preparations for an examination is to answer them at home, in writing and without reference to books, questions set at previous or similar examinations, afterwards correcting them from books and looking up the points unknown.

By the replies to question nine, we find that the majority of the employees are conversant with the names of trees and shrubs (both common and botanical) growing in the parks in which they are employed, but these very clearly indicate how restricted are the kinds of trees and shrubs at present grown in our public parks—every answer being practically a duplicate of the others. This seems to suggest a very desirable issue—viz., that more breadth of treatment should be introduced to our public gardens by increasing as far as possible the number of species and varieties of hardy, deciduous flowering trees and shrubs, of which we have so large a number to select from.

The examiners again desire to impress on the candidates the absolute necessity of observation as they pursue their daily work, and the application of thought as to the why and the wherefore of what they do and what they notice. A man can never be really fit for a high place in any calling in life unless he both thinks and observes. Rules are good, but only so long as they lead to the inquiry as to why in each case they should be followed, and what effect they are intended to produce. Seventeen candidates failed to obtain the requisite number of marks required for a "Pass." These unsuccessful candidates should not be disheartened by failure, but set themselves carefully to observe the things about them, and to think out for themselves the reasons of their different operations. Twelve months of this, coupled with inquiry from their superiors on points which seem difficult to fathom, will probably result in their success at the next or at some subsequent examination.



Dendrobium Cybele, Gatton Park var.

On the 3rd of March at the Royal Horticultural Society's exhibition, Sir Jeremiah Colman, Bart. (gardener, Mr. W. P. Bound), Gatton Park, Surrey, exhibited this new Dendrobium, and was awarded a first-class certificate. The parentage is *nobile nobilius* and *Findleyanum*. The flower, as our figure shows, is large, bold, with beautifully rounded lip, having a blackish-crimson blotch in the centre, and zones of yellow, white, and purple around it. The broad and finely-formed petals are white, tipped with rosy-magenta.

Orchids in Season.

The delicately scented *Cattleya Schrödera* is probably the best of that showy genus which blooms at this season. Others that follow in succession are *C. Mendeli* and *C. Mossiae*, with their host of hybrids. One of the finest yet raised from *C. Schrödera* is *L.-c. Facinator*, in which *L. purpurata* figured as the pollen parent. Another of later date is *L.-c. Ganymede*. In this instance *L. Latona* was the mother plant.

Odontoglossums are now making a grand display, but where any *O.'s* *crispum* are flowering for the first time it is advisable to disbud, leaving, say, one or two buds which must be cut off directly they are fully developed. Plants only partly established feel the strain considerably if permitted to carry a spike with six or eight flowers, although it is not always visible at the time.

The majority of the *Cypripediums* are practically over, excepting *C. Harrisianum*, some of which will soon be in bloom; also the *bellatulum* section. Where these are well grown the foliage is always pleasing to the eye, while the scapes are oftentwinned. Those who include a few *Selenipediums* in their collection can depend on a supply to flower well through the summer; and for any reader who is not acquainted with this group the following selection may be useful. *S.'s grande*, *Sedeni*, *Rozali*, the charming little *Schlimi*, and the quaint *caudatum* with its long, ribbon-like petals. These constitute a unique collection of free-flowering and easily cultivated plants.

The *Ansellias*, of which *africana* is the one to choose, are also interesting and desirable subjects, even when out of flower; but for small low houses they are not recommended, because of their height, which is generally between 4ft and 5ft.

Cyrtopodium Andersoni is rarely seen in these days. The amount of space required no doubt excludes it, like numerous other orchids, from many collections.

Among *Epidendrums* showing signs of flowering is the brilliant *E. radicans*; also *E.'s* *erectum*, *Obrienianum*, and *Wallisi*. *Masdevallias* in variety and *Celogyne cristata* are only a few of the good things that keep our houses gay at the present time.

Miscellaneous Remarks.

Potting operations are now in full swing, and rather than let this important work get behind a few hours overtime (at the usual rate of pay) may be necessary. The *Cypripediums* belonging to the winter-flowering section are all repotted, and

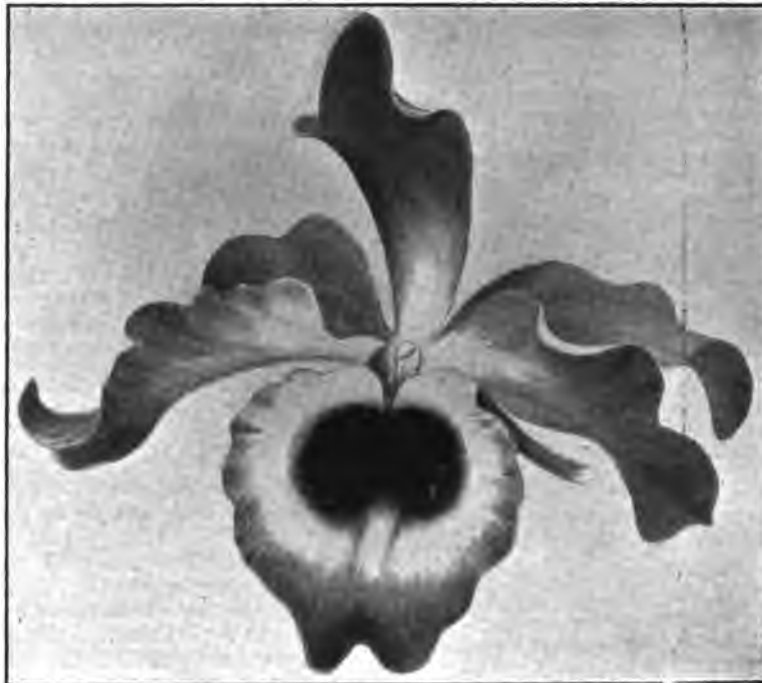
the next to receive attention embrace the *Dendrobiums*, *Phalaenopses*, *Laelio-cattleyas*, and a few of the botanical curios, as necessity arises. A moist atmosphere and shade from the direct rays of the sun must be the rule, with a continual watch for insect foes, especially thrips; but this can be held at bay by fumigating with *XL* All once in three weeks. For sponging and washing the plants, Mitchell's "Reliable" insecticide is held in high esteem by several growers.

Dendrobe Flowering on New Growth.

A correspondent sends a new growth of *Dendrobium nobile*, which is in flower, and wishes to know if this is unusual. To this query our reply is in the affirmative, and we only remember seeing this phenomenon once before. It is not a new growth in the ordinary sense, by which is meant one arising from the base of the last completed pseudo-bulb, also known as the "lead," but an adventitious shoot, which sometimes appears at the nodes of the old bulbs. These in the early stages resemble flower buds. The example sent has three fully developed flowers, and the entire length of the growth is five inches. We should imagine the variety to be a good one, when the blooms are produced in the proper way. Has any other reader had a similar experience?

Increasing Dendrobium Stock.

Sometimes what appears very much like a flower bud turns into growth, which is often the result of a sudden change from cold to heat; but if the variety is a choice one, it can be increased by means of these adventitious shoots that grow away strong after being taken off and potted, and usually exceed in size the parent plant. Another method is to cut some of the back bulbs into lengths, and lay them on sphagnum moss in a moist close house, where they will soon push forth growth and make separate specimens. The old bulbs must always be removed; three to four behind the lead is quite enough. In orchid culture this is an important item, particularly in the present instance; while if a *Dendrobium* collection is to be maintained at a high degree of cultivation, frequent propagation must be resorted to, by the methods advocated above.—T. ANSTISS.



A New Hybrid Dendrobium (D. Cybele).

Collecting Orchids in Their Native Wilds.

(Concluded from page 308.)

When the collector goes into the *Cazanare* he takes his life in his hands, so to speak. The only practical way to transport the plants is by rivers, and there are a good many of these that can be utilised with more or less success; another thing to be reckoned with here is the seasons. Unlike the rest of the country we have here a six months' rainy season and a six months' dry season, with more or less variation, and here it is that several have failed who have tried to collect in this region. When the dry season is fairly advanced most of the smaller rivers dry up, even the larger ones become unsafe for navigation, and if the collector is unfortunate enough to be overtaken by the dry season in his journey he will be stranded somewhere in the wilds without any hope of rescue. On the other hand, during the rainy season, he cannot collect the plants, for during that time everything is inundated; the course of most of the rivers is gone, and all appears like an inland sea. The plants must be collected during the dry season, and everything in readiness at the first sign of the rains. If he can thus calculate all to a nicety, everything is likely to go well, although the greatest dangers and risks are ahead on the rivers. Several of these may be used, but whichever course is chosen the trip is a long one. He may take *Rio Cazanare*, if he collects in that vicinity; from this river he emerges into *Rio Meta*, and

from the Meta into the mighty Orinoco. On his journey he will find two rapids, Trapichote in the Rio Meta and the great waterfalls of Cariben in the Orinoco. If the rafts are strong and fortune favours those on board, they will emerge safe, but in all likelihood more dead than alive; and no one on board will know how it was done; and it is also possible that the collector will have to risk it alone, for while he can get men from certain places along the rivers, they will, as a rule, balk when Cariben is reached. There are also other dangers; certain territories through which our course lies are infested with wild Indians. The lower part of the Rio Cazanare is badly infested with them. The name of the tribe is Curvas (Cazanare Indians). They are very hostile to the white man, and will attack him with their bows and arrows whenever they have an opportunity, and the only way to avoid conflict is to keep the course in the middle of the river and without tying up at night. It also goes without saying that here, if ever, the collector must be well armed. On the Rio Meta we find the Guahibos, or Meta Indians, and lower down the Yaruros, or Orinoco Indians.

Once we are below the Cariben, dangers such as rapids are over, and if the collector succeeded in keeping a few men on the raft he will now float down slowly toward Ciudad Bolivar, but if he is without help to manage his rafts and battle against the trade winds, he will have no easy time. He may be fortunate to be seen by some steamboat and taken in tow; if so, he is safe.

Once in Ciudad Bolivar, if the plants are alive, they can be embarked there for New York; the trip by that time will have taken about three months, so you see it is no child's play.

HAUNTS OF OTHER ORCHIDS.

Now we have taken in all the Colombian Cattleyas, and I would like to say a few words in regard to other orchids and their distribution. *Odontoglossum crispum*, as we all know, is associated with Pacho San Cayetano and other points around Pacho, in such a way that people do not seem to believe that *O. crispum* can be found elsewhere, but it is safe to say that not over twenty-five per cent. of all the plants imported these last few years come from Pacho, for the simple reason that they are not to be had in such quantities any more, and before long the collector will have to look for other fields.

In my travels I made explorations all along the Eastern Cordillera for this purpose, as far south as Garzon, in the south of Tolima, and on the Central Cordillera as far as Pasto, with the result that I found *O. crispum* in several places on the eastern chain, and on the central chain in two places. Far apart, it is true, but in all likelihood I missed a good many places. I must admit I never found any great quantities until Pasto, in southern Cauca, was reached; here are any amount; but of the type called Lehmanni, with the characteristic five spots on the lip. *Miltonia vexillaria* is another plant whose home is Antioquia, yet a few plants have been found in Tolima, and then we lose sight of it again, to reappear in a slightly different form in Ecuador under the name of *M. vexillaria rubella*.

Another great genus of plants in the Colombian Andes is the *Masdevallia*; Sonson, south of Medellin, is the region for these; here these plants occur everywhere in all shapes and colours.

Venezuela has four species of *Cattleya*, namely, *C. Mossiae*, *C. Percivaliana*, *C. speciosissima*, and *C. Gaskelliana*; the two first mentioned are found in the Cordillera de los Andes. *C. speciosissima* is found in the Cuspena Cordillera, and *C. Gaskelliana* in the north-eastern part.

Going southward to the Guianas we find *Cattleya Lawrenceana* in the Roraima Mountains, and farther south in the mountains above Pernambuco in Brazil the well-known *C. labiata*.

In looking at the map it will occur to someone to ask if there are not plenty of orchids in the immense territory lying between the Orinoco on the north and the Amazon on the south; the western boundary would be the eastern Cordillera in the west, and the Atlantic Ocean on the east; including such rivers as the Rio Negro and its tributaries, Rio Guayabero, Rio Meta, &c.

Cattleya Schrödera is probably the only *Cattleya* of any account in this region, although the greater part of this country is still practically unknown; but what is known has not produced anything surprising in orchids. Almost the whole territory is very uniform in climatic conditions, and without any high mountains, so we can reasonably expect that no great novelties are in store for us here.

Cattleya Eldorado is found in quantity along the northern banks of the Amazon, beginning at Manaus; also along the Rio Negro; *C. superba* is also found here. This *Cattleya* also occurs in several other localities, such as on the Cazanare, Rio Meta, Orinoco, and even south of the Amazon, while *C. Eldorado* does not cross the Amazon southward.—(JOHN E. LAGER, Summit, New Jersey, in "Transactions of Massachusetts Horticultural Society.")

NOTES AND NOTICES

Auricula and Primula Show.

The National Auricula and Primula Society will hold their annual show in conjunction with the Royal Horticultural Society's usual fortnightly exhibition on Tuesday, April 20. Copies of the special prize schedule may be had on application to Mr. T. E. Henwood, Auricula Villa, Hamilton Road, Reading.

Royal Meteorological Society.

An ordinary meeting will be held at the Institution of Civil Engineers, Great George Street, Westminster, S.W., on Wednesday, April 15, 1908, at 7.30 p.m. Papers to be read:—1. "Report on the Phenological Observations for 1907," by Edward Mawley. 2. "The Anticyclonic Belt of the Southern Hemisphere," by Colonel H. E. Rawson, C.B., R.E.

A Great American Show.

The Society of American Florists and Ornamental Horticulturists announces that it will hold its first national flower show at Chicago, November 6 to 15, 1908. A most cordial invitation is extended to readers of the *Journal of Horticulture* to attend and exhibit at this, the first show of its proposed scope ever held in America. Enquiries should be addressed to Mr. J. H. Burdett, secretary, 1411, First National Bank Buildings, Chicago, Illinois, U.S.A.

School Teachers' Examination.

The Royal Horticultural Society will hold an examination in cottage and allotment gardening on Wednesday, April 29, in as many different places in Great Britain and Ireland as circumstances may demand. This examination is intended for, and will be confined to, elementary and technical school teachers. Teachers and assistants desiring to sit for the examination should apply at once for a copy of the syllabus and entry form to the Secretary, Royal Horticultural Society, Vincent Square, London, S.W. The entries close on Saturday, April 18.

Fruit Growers' Federation and Potatoes.

No sooner has the National Potato Society closed, or been forced to close, its accounts, than we are face to face with the anomaly of the National Fruit Growers' Federation presenting a rather curious petition to the Board of Agriculture, not in any way pertaining to fruit or pomological matters, but to a disease affecting the noble tuber. Where is the National Potato Trade Society? and what is it doing? Meanwhile, some scientific gentleman, probably with a seat on the council of the N.F.G.F., has been successful in moving that body to hustle up the Board of Agriculture. Truly, though, in some things "the Board" requires to be hustled. We are still waiting and hoping for a pomological bureau or section of the Board, and would be glad also to see a horticultural sub-department established.

The Nurserymen, Market Gardeners', and General Hailstorm Insurance Corporation, Ltd.

The thirteenth annual general meeting of this company was held at 41 and 42, King Street, Covent Garden, on Friday, 3rd inst. The accounts showed an increase in the year both as regards premium income and interest. The year had been peculiarly free from hailstorms, but two further claims had been settled since the accounts were closed. During the thirteen years the premium income had increased from £681 1s. 9d. to £2,476 13s. 10d., which showed that the company was meeting a distinct need and becoming better known. A dividend of 7½ per cent. and bonus of 2½ per cent., making £1,000 in all, was declared, and £1,500 added to the reserve fund, making the reserve £13,500. The invested funds at the end of the year amounted to £23,969 0s. 7d. The company were not paying big dividends, but were building up their reserve fund against heavy claims which might come in at any moment. The area insured now amounted to over 35,500,000 square feet of glass.

Weather in Perthshire.

March went out "like a lion" with several extremely boisterous and wet days and nights. April has been less stormy, but a good deal of rain has fallen, and farm and garden work was brought to a stand, while a bitter N.E. wind prevailed from the 3rd to the 5th. On Monday, 7deg of frost were registered, the day was bright, and a rising barometer promised better weather.—B. D., S. Perthshire.

"The Practical Greenkeeper."

Now is the time when all who have the making or care of lawns are "up to their eyes" in work, as the saying is, mending or remaking lawns, cricket pitches, tennis and golfing greens. There are several good booklets and pamphlets giving information upon lawns, their upkeep and general treatment, and now we have before us an excellent work by Mr. Reginald Beale, F.L.S., of Messrs. Carter and Co., 97, High Holborn, London. This booklet, we might say, is presented to any enquirer, and application should be directed to Messrs. Carter. The whole routine and processes of lawn making and of renovation are described, and the work is illustrated on every page. A chapter on worms in putting and other greens is appended, and the splendidly beneficial effects of using Carter's Worm-killer, a powder that can be easily applied and watered in, is testified to.

March Weather at Belvoir Castle.

The prevailing direction of the wind was S.W. eight days and N.W. eight days. The total rainfall was 2.69in; this fell on twenty-seven days, and is 1.06in above the average for the month; the greatest daily fall was 0.82in on the 25th. Barometer (corrected and reduced): highest reading 30.282in on the 14th at 9 p.m.; lowest reading 29.174in on the 9th at 9 p.m.; mean of 9 a.m. and 9 p.m. readings 29.826in. Thermometers: highest in the shade 56deg on the 8th; lowest on the screen 18deg on the 15th; mean of daily maxima 44.64deg; mean of daily minima 31.77deg; mean temperature of the month 38.20deg, which is 2.83deg below the average; lowest on the grass 15deg on the 15th; highest in sun 109deg on the 30th; mean temperature of the earth at 3ft, 40.09deg, which is 0.30deg below the average. Total sunshine, 100 hours, which is 12 hours 36 minutes below the average; there were four sunless days. This has been the coldest March here since 1901.—W. H. DIVERS.

Royal Horticultural Society.

The next fruit and flower show of the Royal Horticultural Society will be held on Tuesday, April 14, in the society's hall, Vincent Square, London, S.W., 1 to 6 p.m., when special prizes will be offered for Daffodil blossoms, open to amateurs and gentlemen's gardeners only, as follows:—Group of Daffodil blossoms grown entirely outdoors (Polyanthus varieties excluded); must include some of each section (magni-medio and parvi-coronati), and must contain at least thirty varieties distinct, at least three blooms of each. Not more than nine blooms of any one variety may be put up; to be staged in bottles, vases or tubes, not exceeding three inches in diameter at the top (inside measurement), and all the stems must touch the water. Quality of the flower will count more than quantity, and correct naming and tasteful arrangement will be duly considered. Any hardy foliage may be used, Daffodil or otherwise. No prize will be awarded unless there are three competitors at least. First prize, a £7 7s. silver vase, presented by Messrs. Barr and Sons; second prize, silver Flora medal. Past winners of this cup may exhibit, but will not be eligible to receive the cup more than once in three years. In the event of any such previous winner being adjudged "first," a medal will be awarded instead of the cup, which will go to the next best exhibit, provided that the judges consider it to be of sufficient merit. A lecture will be given at 3 o'clock in the lecture room on the first floor, by Mr. E. A. Bowles, M.A., F.L.S., on "Hardy Cacti and other Hardy Succulents," which will be illustrated by lantern slides.

At a general meeting of the society held on Tuesday, March 31, eighty-two new Fellows were elected, among them being Lady Furness, Lady M. Paget, Lady Wernher, and Lady Sarah Wilson, making a total of 456 new Fellows elected since the beginning of the present year.

A Picture Exhibition.

There are now being exhibited at the Grafton Galleries, London, portraits of native princes of central India, studies of Kew Gardens, Italian landscapes and other works by Mr. A. Olivier. The exhibition closes on April 14.

British Gardeners' Association.

The first monthly meeting of the London branch will be held at Carr's Restaurant, Strand (next Law Courts), this evening, April 9, at 8 o'clock, when Mr. Hawes, superintendent, Royal Botanic Gardens, Regents Park, will give an address on "The Present Opportunities of a Gardener." The meeting is open to all professional gardeners, whether members of the B.G.A. or not. It is earnestly hoped that the attendance will be as large as possible.—A. J. HARTLESS, Branch Secretary.

A public meeting will be held at the Eccles Rooms, Station Road, Blackburn, Lancs., on Wednesday, April 15, at 7.30, when a delegate from London will deliver an address with a view to forming a new branch.

Sussex Weather.

The total rainfall at Abbots Leigh, Haywards Heath, for the past month was 2.78in, being 0.81in above the average. The heaviest fall was 0.59in on the 5th. Rain (or snow) fell on twenty days; total for the quarter, 5.76in, which is about an inch short of the average. The maximum temperature was 56deg on the 8th and 23rd; the minimum, 24deg on the 15th; mean maximum, 47.09deg; mean minimum, 33.11deg; mean temperature, 40.20deg, which is 0.79deg below the normal. March dust has this year been at a premium. It has been all "lion" and no "lamb." Though the amount of rain has not been great, it has come in those provoking little showers all through the month, keeping the land too wet to work upon; consequently cropping has been delayed.—R. I.

Law Note.

In the case of Messrs. Alexander Dickson and Sons, the Master of the Rolls made an order last week for fuller and better answers by the defendants to interrogatories by the plaintiffs in the action brought by Alexander Dickson and Sons, Ltd., v. Alexander Dickson and Sons for an injunction to restrain the defendants from selling Roses or seeds not grown or propagated by the plaintiff company as Dickson's Roses or Dickson's seeds, and from carrying on the business of nurserymen and seedmen under the style of Alexander Dickson and Sons, or any style in which the name Dickson appears, without taking reasonable precautions clearly to distinguish the business carried on by the defendants from that carried on by the plaintiff company. The plaintiffs are well-known Rose specialists, carrying on business in Newtownards, Belfast, Dublin, Blackrock, and also in Hertfordshire, and the defendants, Mr. Alexander Dickson and his two sons, carrying on business as seed merchants in Parliament Street, Dublin, under the name of the Ashbourne Agricultural Company, and as Rose growers and nurserymen, at Woodlawn, Dundrum, under the name of Alexander Dickson and Sons.—("Irish Daily Independent.")

"Famous Old-time Gardeners."

Under this title, Mr. J. Harrison Dick delivered an address, illustrated with lantern slides, before the Redhill and Reigate (Surrey) Gardeners' Society at their last meeting. Mr. W. P. Bound presided over a large attendance. Mr. Dick prefaced his remarks with a brief description of the political and geographical position of things in the Dark Ages—the mediæval times prior to the Renaissance. He then showed pictures of a Tudor garden, and went on to describe these and the plants that were to be found therein. The herbalists of the sixteenth and seventeenth centuries were not overlooked, among them being Clusius, Dodoens, Culpepper, Gesner, L'Obel, Gerarde, Turner, Parkinson, and Thos. Johnson. An interesting slide was the one showing the world at four periods, to illustrate the progress of geographical discovery and the introduction of exotic plants; and equally interesting was the list of forest trees and the dates of their introduction to England. Among these are the Spanish and Horse Chestnuts, Walnut, Cedar, Lombardy Poplar, Larch and Plane. Among the famous "gardeners" were Markham, Gerarde, Parkinson, Tradescant (the elder), Bobart, Evelyn, Rose, Sir Wm. Temple, Philip



A choice group of Succulents.

Miller, Chambers, Lawrence, Abercrombie, Humphrey Repton, Wm. Curtis, Forsyth, Sir Joseph Banks, T. A. Knight, Loudon, Thos. Rivers, J. R. Pearson, and several others. The period covered was roughly from 1550 to the beginning of the nineteenth century. The lecture was received with applause.

Barton Manor.

The King's residence at Barton Manor, on the Osborne estate, is undergoing a process of transformation into one of the most charming houses in the Isle of Wight. The improvements are now to all intents completed, and the sloping lawns around the ornamental lake add to the picturesqueness of the grounds. During the last few weeks hundreds of trees and shrubs have been planted, including Rhododendrons, Camellias, Laurestinas, Japanese Maples, Cedars, and silver and copper Beeches.

Newport (Mon.) Gardeners' Association.

At the meeting held on March 25, Mr. T. W. Mitchell read a paper on bulbs. It was recommended to pot up the first batch of bulbs as early as possible, and afterwards in batches to prolong the season of blooming. After potting, cover with ashes or fibre for about six weeks. Bulbs for bedding were also dealt with, and he concluded by giving the best sorts to grow. A good discussion followed, and the usual vote of thanks was accorded.

March Weather at Desford, Leicester.

Low temperatures have characterised the last month, sunny days having been tempered by cold winds. Snowstorms were experienced on five occasions, which helped to swell the total "rainfall" for the month to 3.28in. This fell on sixteen days; the greatest quantity was recorded for the 25th, when it was 0.75in. The mean temperature was below the average, being only 39.6deg. This was less than the mean of 42.5deg for the previous month. The warmest days were the 23rd and 24th, when the maximums were 56deg for each day; the minimum was 28deg on the 12th. Vegetation, which seemed rather forward last month, has been retarded during March, so that when warmer weather comes along progress will be made very quickly.—L. F. D.

Destruction of Rats.

Representatives of the Westmorland County Council, having witnessed a demonstration of the destruction of rats by an inspector of the Ratin Bacteriological Laboratory, they stated that most excellent results had attended the experiment. The Holmescales Farm is about 370 acres in extent, with a river running full length of the west boundary, say three-quarters of a mile. Last year about thirty acres were under corn, and the buildings are sufficient to accommodate about 100 head of cattle. Considering this, where so much water and food was constantly about there must have been a great number of rats on the estate, and it is noteworthy that with one application of "Ratin" the whole estate was cleared.

Choice Succulentæ.

Upon a corner of one of the stages in the Cape House or Heath House, in the Royal Gardens, Kew, there is collected a pretty little group of the more interesting and uncommon dwarf South African Succulentæ. Our small photograph only imperfectly illustrates the diversity and quaintness of the plants. Most prominent are the figures of *Aloe variegata*, barred with green and pale grey, the V-shaped tapering leaves forming a pyramidal spiral. Next to this plant, on the left, is the rare *Senecio Haworthii*, with round, white-felted, finger-like growths in bunches, held erectly. We presented a separate figure of this plant in our issue of December 26 last. The spiny and repellent-looking member in the immediate forefront is *Opuntia tunicata*; and its near relative, *Opuntia ursina*, the Grisly Bear Cactus, is the upright, woolly or silvery-like plant near the left edge of the photograph. Quite in the centre is the rounded mass of globular tissue which represents *Mesembryanthemum minutum*—like a conglomeration of swelling bulbils. Other decidedly interesting plants, which however we can hardly locate for the reader by mere textual description, include *Crasula pseudo-lycopodioides*, like *Lycopodium*; *Crasula hemisphærica*, with rosettes of fleshy leaves, the size of a finger-nail, with acute apex; *Cotyledon pulvinata* (frontmost plant in the photograph), with oval, fleshy leaves, covered with a grey felt. *Cotyledon clavifolia cristata*, with small oval leaves in bunched masses; *Mesembryanthemum Bolusi*, with thick, dark green, angular growths, 3in to 4in long, 1½in deep, and as broad. *Monanthes muralis* hardly seems in keeping with its fellows here. It is succulent, without doubt, but looks more like one of our garden Sedums. The tiny brownish leaflets are arranged like those of *Thyme*, on the short stems. *Ceropegia fusca* must also be mentioned as an uncommon species, with dark olive green, erect rounded stems, without leaves, something like kitchen *Asparagus* in the young stage. This *Ceropegia*, however, is quite smooth. *Euphorbia procumbens*, dark green, but like a star-fish in shape, furnishes another quaint addition, and lastly may be mentioned *Kleinia teretifolia*, with scalloped glaucous leaves, 2in long and ½in broad.

Border Carnations.

The outstanding and most important points to be considered in making a Carnation bed or border are that Carnations require space, light, and fresh air, and should have the bed or border practically to themselves.

Selection should be made of a site facing towards the south, or at least unshaded, for the Carnation cannot have too much sun. Protection of shrubs on the north and east is very desirable, but the shrubs must be kept well back, or the bed or border so far distant from them that they will not be interfered with as regards light, and also at the roots, there not being any confinement about the bed or border, as "smugness" often means still air, and its concomitant air moisture, whereas Carnations cannot have too much air.

Another point of importance is that the bed or border be of such width that all the plants in it can be easily got at, and the operations of staking and tying, disbudding, layering, &c., conducted without being obliged to step upon it. It is also desirable that the soil should be raised, for drainage purposes, 6in to 9in above the surrounding level. The soil of the site, as a preliminary step, should be well and deeply trenched, it being presumed that the land is duly drained, otherwise the trenching will only form pits for holding water in the case of heavy soil.

As regards the soil, it is well known that Carnations will grow and flower more or less in any and every soil, but it is equally certain that they are only seen in their full vigour and beauty when attention has been given to the composition of the border. The very best soil for Carnations is a fairly strong virgin loam, open and free from stickiness. To this may be added a liberal dressing of well-rotted manure, say from an old hotbed, a little mortar rubbish, and some road scrapings from a pit-gravelled road, not from a road granited, slagged, or tarred, all three of which are best omitted, drift (river or sea) sand being used instead. A light addition of bone dust may be used to advantage. The amount of the opening material to be used will depend upon the nature of the loam. The heavier it is the more liberal must be the addition of the other constituents of the bed or border to keep it well open. Rank, fresh stable, or other manure should not be used. No amount of digging, no supplies of manure produce such satisfactory results as top spit or virgin loam.

The bed or border when finished should be well and firmly

trodden down, and then it is ready for the plants, which should be well rooted layers; badly rooted are not worth the trouble of planting, and should be rejected. It is very important that the plants be well established in the bed or border before the rough cold weather sets in, and this in most cases is not assured unless they are all in their places by the middle of October. They should be placed about 15 in distance apart, planting fairly deep and very firmly. As the season is so far advanced planting may be deferred until the first opportunity afforded by open weather after the middle of February, the layers being potted, stood on and plunged in ashes, protected overhead from drenching rains and snow, but must always have abundance of light and air.—S. G.

A Standard Cytisus.

All sorts of greenhouse flowering shrubby plants, and particularly those that are forced for flowering in the early days of spring, are to be had as standards. Indeed, fashion seems to run strongly in favour of standards at the present time. For the larger conservatory, or for halls and corridors, there is a certain advantage in the standard, since the branching head of flowers is brought more up to the level of the eye. We have reproduced, from "The American Florist," a photograph of a shapely standard Cytisus (*C. fragrans*, syn. *Genista fragrans*), grown in the nursery of the Robert Craig Co., in America. Standard plants (says our contemporary) are best for not being trimmed or clipped in too closely; the plants are more graceful when allowed to make a more or less natural growth which would be out of place in the ordinary bush shaped plant as grown for market. Anyone desiring to grow such plants should select young specimens with as straight shoots as possible and run them straight up to the desired height, when they may be stopped and a head gradually formed by stopping the side shoots as they appear. It will take at least two seasons' growth to get well furnished specimens from the time the young plants are selected for the purpose, and each year, of course, they will improve. Summer is the time for growth, and as soon as the flowers are past the shears may be used to clip them into shape. Then let them grow naturally, only stopping any shoots that seem to be taking an undue lead at the risk or spoiling the symmetry of the plant. The Cytisus is a stronger feeder than the majority of hardwooded plants, and to get the best results must never be allowed to suffer for want of manurial sustenance.



Cytisus fragrans in a gin. pot.



The Perils of a Flower Show.

My thoughts are not going back now to that disastrous occasion when, having staged my precious exhibits, and decorated the dining-table with my best glass and loveliest flowers, a mighty wind arose and brought down the tent about our ears, scattering destruction in every direction. We considered ourselves lucky that with life and limb we escaped, how we hardly knew. The suddenness of the attack gave us no chance to save ourselves; we were smitten where we stood, but fortunately only by canvas. The society was a young and struggling affair—one wet day has seriously crippled the finances, and the terrible whirlwind did the rest. The collapse of tent and society was total; the sun of their prosperity set, to rise no more.

There are other dangers; pitfalls for the unwary, I call them. The youthful horticulturist in the seclusion of his own garden is apt to take a far too rosy view of his own position. He has so much to learn about the very rudiments of showing. His business is to have his exhibits ready at their best on the date that the committee have selected for the show. A week before, or a week after, or even a day, will not do. He finds one year he is too forward, the next behindhand. He will, if wise, arrange to grow his exhibits in different positions—an early aspect and a late one. At the time of making final entries he will often discover that he must take another line altogether from that he had planned, and must be content with the day of small things. Last year, for instance, we made sure of Sweet Peas unburnt by the sun. We planted our best in shady positions to escape the trouble we had experienced in 1906, when lo! there was no scorching sun, not enough even to bring the flowers fully out, and we were sadly nonplussed. Many of the vegetables could only be called so by courtesy; fine pods, but the Beans and Peas were mean in the extreme. What should have been dessert Apples—the beautiful early varieties—were uncommonly unappetising.

A hot dry week will play the very havoc with the Roses. They will come and go in a night, and those that look fairly well at early dawn will present a sorry appearance in the tent at, say, 4.03 p.m. I might continue all through the list; but I am thinking now more of the perils that beset me, individually, when I frequent a show. I can pass by a bonnet-shop unmoved; dresses tempt me not when I have once got my summer and my winter frock, but I cannot say the same about the flowers. Hothouse beauties I may love, but I do not desire them. "Herbaceous" I leave to those who have big wide borders to fill. What I want is something for my Rose garden; something that I can have from June up to the reign of Jack Frost; something sweet, something with rich colour; with all colours and all textures. There is such infinite variety in the flower of my choice that I am content with it, and with it alone. And I like the best. I am not fickle; I do hold to my old loves, often long after they have been superseded by, shall I say better? Sometimes I am fain to confess there are weak points in those I admire, but I am often long before I fully acknowledge the charms of the usurping sovereign.

I look through lists of to-day; I look through lists of twenty years back. The cult of the Rose has progressed by leaps and bounds; and the exhibition box of to-day comes very near perfection, and it is those exhibition boxes that are so fatal to me. I have but little money to spend, and I am tempted on every hand. As I generally have a good stock of workable Briars, I treat myself to a small box of buds, and I must say my friends, the nurserymen, are most generous. Then there is all the risk to run—the best may not take—and certainly, for the first season I cannot hope, even with the best of luck, to gather many blooms. Still, for the patient person this plan is a good one, and I can recommend it. To grow from cuttings is such slow work, and honestly I still fancy I get the best results from budded Briars. But each year I just indulge in a few, very few plants, and they give me more pleasure than I can express. There is the pleasure of selection, the pleasure of planting, and the pleasure of anticipation. I know every individual plant—I was going to say almost every leaf and bud. Now, this year I am hoping for great things. I was extravagant; I gave as much as the price of a new pair of gloves for one tree. I said "Hang the expense," for once I must have something good. They tell me that in the Queen of Spain I shall have a straight-necked Bessie Brown. I like "B. B." but I do not like her habit of hanging her head. I was cautious over William Shean, but "purest pink, with delicate veination" was not to be resisted; but possibly these will not be one wit better than some of the lesser priced beauties. [Queen of Spain seems rather prone to mildew. Have you Joseph Lowe?—Ed.]

In the *Journal* for January 23 was a most interesting paper on "Rose Showing," signed "A. C." Was the writer easily spotted, and had his name a short prefix? He spoke of spoiling a box by putting in a Paul Neron. That must have been very early on in his career as a show man. Fancy Annie Laxton and John Hopper in a prize-taking box! Here is a Rose now, that, to my mind, is coarse and v-l-, and that is J. B. Clark. I think it will not be long before it keeps company with Paul Neron. Size is not everything; we want Roses, not Peonies.

I never could get up any enthusiasm for Mrs. John Laing. There is a commonness about the colour, it does not look to me pure, and she is very big. Caroline Testout is big, but the colour is so perfect; although, perhaps, some would admire the pink of Marie Finger. The pink I love best is found in Countess of Folkestone, and next to that in the heart of a Captain Christy. There was a time when we swore by Gabriel Luizet, but now we rarely mention her. Londonderry is big, very big, but a bit too solid in a damp time.

It requires a strong living faith to believe that this garden last year blossomed as and with the Rose. The snow and rain alternating, the cold winds and the frosty nights seem to say that the Rose days are still far off. We, along with the Roses, are passing through dark days, days that will ultimately benefit both Rose and mistress, we hope.

One of the young gardeners in the "Domain" the other day gave as his experience that Roses were very easy of cultivation. He was young. If he writes in twenty years time he will hardly be so cock-sure. It may be easy to grow Roses, but not easy to grow them well. After many years of trial I find I have still something to learn, and I still believe that where people fail in having good blooms it is not the fault of the trees, nor the soil, but the lack of efficient pruning. A paper that fancies it knows a good deal published, a week or two back, the pictures of unpruned and pruned trees. All I can say is those special varieties I know pretty well from first-hand knowledge, and if I did not cut back much harder than those were cut back I should not expect much bloom in July. There is much more harm done from under than over-pruning.

Mind, do not run away with the notion that soil is nothing. A Rose must have something to feed on, and often a mistake is made by giving the plant too much nourishment in a crude form. The nourishment wants to be mellow, so that the little fibres can take it up with ease. No one, also, can grow good Roses from worn-out trees; I should like to have a bonfire in many gardens I could mention. As to pruning, do not go out in the morning and cut back your ramblers and climbers, but just judiciously thin out, paying particular attention, let us say, to Dorothy Perkins and others of that class. She, in particular, grows such a close massy head, and there is always lots of weak wood to be found on the other trees if looked for.

I often wonder why nurserymen go to the expense of illustrating in black and white their Rose catalogues. Whatever sort of an idea do they expect you to get of the flowers by that process? As to word painting, the more I read the more astonished I am. Surely some of these men must keep a tame poet on the premises. Their powers of description are unique. Where their adjectives come from I cannot tell, but some, at least, are coined for the occasion.

Well, the season of 1908 lies before us. There will be surprises and disappointments; let us hope the former will outweigh the latter. There is no pleasure so pure as that found among our flowers, and no labour that pays so well. A lucky year to all faithful rosarians, and may they have always a few spare shillings to spend on new varieties of their Queen.—THE MISSUS.

A Horticultural Retrospect and Outlook.*

(Continued from page 312.)

Journeyman's wages were, in the seventies, 11s. per week. All labour was then low paid, and I am certain that the young men turning out of the bothy on a Monday morning had a far finer appearance, both in physique and dress (dressed as they were with clean washed moleskins or corduroys, and clean washed sleeve waistcoats, double breasted to the neck), than the dirty ragged drabs we often see now turning out. And in these bothies men spent much more of their leisure time than I fear they do now, even in the most palatial ones, self-educating themselves for advance in their profession. There was no half Saturday off; and now the young gardener has got it, I fear the love of sport dominates him as it does so many more at present, and within half an hour of the time he stops work on Saturday you find him at the railway station en route to a football match or some other game.

At the beginning of the decade of '70, the great depression of '58 had passed away, and every industry was booming. Agricultural profits were more than they had ever been before,

and more than they have been since. Twenty years before, the nursery and seed business was in the hands of a very few leading firms in London and Edinburgh. In the interval a large number of firms had come into existence, all pushing their business with great energy and skill, most of them with very marked success. This great energy and extension of the nursery trade was really the pioneering of what I can call nothing else than a revolution in horticulture that took place at the beginning of the seventies. Horticulture began now to be thoroughly democratised. Previously it was almost exclusively aristocratic. It was at this period that two great issues in horticulture began to come into prominence, and have gone on making marvellous developments ever since, namely, market gardening, and providing gardens and pleasure grounds in the hearts and suburbs of our densely populated cities. The first man at the beginning of this decade who ventured to put up some big houses to grow fruit for market was told at the outset by his friends to his face that he was mad. When he got fully started, he gave a young fellow £100 to go and sell his fruit in Covent Garden. The whole turned out such a success that in a few years huge areas came to be covered with glass in different parts of the country, dwarfing this first man's venture into utter insignificance. So gigantic did this market gardening business under glass become that, in the following decade of the eighties, this young man who was sent with the £100 to Covent Garden to begin as a salesman, had developed into the largest fruit and flower salesman known, with an income of £20,000 yearly. What a development has taken place in all our large cities since that period in the splendid flower and fruit shops to be seen in almost every street!

At the beginning of the seventies, the two first city gardeners or superintendents of public parks were appointed in Scotland—one for Edinburgh and one for Glasgow. Previous to that, any little floral embellishment given to city public gardens or squares was given in contract to some local nurseryman. One or two London parks and one in Dublin had some notoriety then, but it was at this period that a marvellous development began to take place in the embellishment of public parks and gardens. Three men, who had spent the larger portion of their lives in public parks, came prominently before the horticultural world at this time, as being the most recognised leading authorities in the best art of decorative gardening. Graham, superintendent, Hampton Court Gardens; Gibson, superintendent, Battersea Park, and Robinson, then editor of "The Garden," and who wrote a book on the gardens of Paris. The latter began his horticultural career as a young assistant in Phoenix Park, Dublin. Graham, who previous to his appointment at Hampton Court had held a situation as gardener in America, introduced at Hampton Court the mode of planting flower beds in America then, namely, the so-called carpet bedding system. This system was immediately taken up by the leading public parks throughout the Kingdom, and most private gardens where flower gardens were specialised.

This form of flower gardening, on account of the large number of plants required, many of them tender, and the very constant manipulating to keep the designs in proper shape, proved a very expensive way of filling flower beds, and Graham immediately followed it up by a mixed system of filling flower beds, which in turn was immediately copied throughout the country, and with varied modifications has continued the system to the present. Gibson's subtropical bedding out in Battersea created quite a sensation, and was certainly very largely copied in private gardens and public parks in England and Ireland. Where there was, either in a private garden or a public park, a combination of these three forms of flower gardening, they were more admired than any form of flower gardens yet introduced. In our late president's address a year ago, he stated the climatic conditions of Edinburgh might in the near future be such that tropical plants could luxuriate in Princes Street gardens. Well, I would say, let us first have the sub-tropical [weather] in Edinburgh. But my experience of these sub-tropical beds, and I have had a good deal of experience with them, makes me say the attempt to make beds of such plants as seen in the South of England or South of Ireland, in Edinburgh would be an utter failure. Robinson, the third man I indicated, no doubt had a strong influence on the opinions regarding ornamental gardening during the decades I have been discussing. He went to Paris and worked in gardens there when the second Napoleonic dynasty was at the height of its glory.

No doubt there was then an extravagant fashion in gardening commensurate with all the other extravagances carried out in and around the French court, and taking into consideration the difference of summer temperature between London and Paris, a man such as he, a ready writer, and possessed of a sharp wit, could point out through the Press suggestions to be copied from the Paris gardens into the London ones. Robinson, returning to London, devoted his whole time to writing in connection with horticulture. It was then that what he issued, both in book and magazine form, became influential in these phases of horticulture.

be continued.)

* Mr. Whytock's presidential address before the Scottish Horticultural Association.



Kew Notes.

One of the prettiest subjects recently to be seen in the greenhouse at Kew was *Olearia ramulosa*, with long, arching, slender shoots studded with starry white flowers. Among the good Hyacinths were the varieties Czar Peter, pale blue; and City of Haarlem, a fine soft yellow. Carnations have been a gay feature all the winter; and the *Hippeastrums* have been particularly meritorious. Six, or even seven, large blooms on a scape was not uncommon. Tulip *Imperator rubrorum* is unmistakably one of the finest of all doubles. A plant of *Humea elegans* has existed in a good state all the winter, and has been a welcome addition. *Saxifraga Griesbachii*, in pans, was and is very pretty; also *Iris reticulata histrioides*, and *Cyclamen ibericum*, *Epacris*, *Rhododendrons*, *Coreopsis Grantii*, and the *Lachenalias*, are each excellent.—S.

Forest Extension in Ireland.

The people of Ireland pay £1,000,000 a year for the timber which is imported from other countries. This is the penalty of failure to protect its forests. Ireland has only one and a half per cent. of its land in timber, and much of that small area is covered with scrub growth of little value. At the same time 23 per cent. of the island is uncultivated. Few inhabited countries have been so extensively deforested. The work of changing conditions for the better has been entered upon, however, and scientific forestry will be applied. Consul-General Alfred K. Moe, of Dublin, reports the progress that has been made looking to the preservation of the few remaining forests and the reforestation of vast areas. The Irish Department of Agriculture maintains a forest school at Avondale, which will have charge of the tree planting. A special study has been made of Lord Fitzwilliam's estate, which was planted to timber fifty years ago. A popular objection to reforestation in Ireland has been that forest plantations offer less employment to labour than equal areas of agricultural land. It was shown, however, that Lord Fitzwilliam's forest, although planted on poor soil not valuable for agriculture, had employed four times as much labour as has been employed upon the agricultural land, and was more profitable to the owner. Within the past year timber to the value of £10,000 has been sold from the plantation, and much remains to be cut.

Show Pelargoniums.

Large, well-grown plants of show *Pelargoniums* make a striking display when in full bloom. Small and medium size plants, although as decorative subjects not so desirable as much larger specimens, are nevertheless very useful because of the bright effects they are capable of producing when numbers of them are made the most of possible. Cuttings of show *Pelargoniums* taken off plants that have bloomed and inserted singly in 2½ in or 3 in pots which had previously been filled with loam and old rotted manure, will root freely in a temperature of 60 deg. When inserting the cuttings it will be well to put a little sand at the base of each. When the cuttings are rooted and proceed to grow freely the tops should be pinched. Later, when they have made further growth and filled their pots with roots, they should be shifted into pots at least two sizes larger; the soil at this stage should consist of loam and a small proportion of well rotted manure, with the addition of a sprinkling of bonemeal. The potting should be done firmly. The plants should be given a light, airy situation close to the glass, in frames where in summer the lights may be removed, but remain at hand to be put on again for the protection of the plants from chilly night air and cold rains. By early fall, and perhaps before, the flower trusses will be noticeable in the points of the shoots, and a crop of bloom can be had from these early

plants by placing them in heat near the glass in a light, airy position. These plants worked in this way may be made to yield a succession of flowers all through the winter. When the stems of old plants have turned yellow cuttings should be taken off them for later bloom, and by this means have these beautiful plants flowering in succession all through the winter and into the early summer.—("Florists' Exchange.")

Monardas.

These are showy herbaceous plants of very simple culture, almost any position or soil suiting them. They are easily increased by division of the roots, which operation can be performed with most safety during early spring. As their roots keep near the surface, they thrive well when afforded a top-dressing of some fine soil when they are in active growth. *M. didyma*, with bright scarlet flowers, and *M. fistulosa* or Bergamot, with variable flowers from red to nearly white, are desirable kinds, as is *M. purpurea*, of taller habit, with deep purple flowers.

April Work Among the Auriculas.

This is the month that determines whether the previous eleven months' work has been sound or faulty. With the advent of this month stray blooms will begin to appear, and by the third week the plants should be well in bloom. Careful attention must be paid to watering, for it will be fatal to the bloom should any plant become too dry. As they come into bloom the early morning sun is beneficial, but in the middle of the day, when the sun is bright, they should be protected. When the plants are well in bloom the sun must never reach them or the bloom will soon spoil. Abundance of air must be given and the plants kept as cool as possible. Many of the blooming stems will require support, and the pips will want arranging in some cases to show the truss off to the best advantage. The plants must be kept free from green fly or the enemy will multiply rapidly.

The Last of a Famous Oak.

The great Oak tree which, far beyond living memory, was one of the sights of the fine woodlands on the Marquis of Tweeddale's estate of Yester, East Lothian (reports the "N. B. Agriculturist") has come to an untimely end. The giant measured 15 ft round the bole, and was of great height and magnificent appearance. It was estimated to contain about 400 cubic feet of timber, and to date back to the union of the crowns of Scotland and England. For years past the heavy top weight on the very tall trunk has made it evident that, although perfectly sound in every way, the days of the tree were numbered, and the question of how best it could safely be cut down was considered. The matter has been solved by the sylvan monarch quietly toppling over of its own accord. Its root area has been found to be surprisingly small for so large a tree. From its situation on the way to the far-famed Goblin Ha' of Marmion, from which it was not far removed, the tree was familiar to visitors.

Afforestation in the Highlands.

In the course of his speech at the half-yearly meeting of the Highland Railway Company held at Inverness some time ago, Mr. Wm. Whitelaw, the chairman of the company, said their goods traffic was one of the best they had had in recent years. It was largely composed of timber, which, in the Highlands, had less foreign competition to meet. The time would come when the timber traffic of the Highlands would disappear, unless the wood cut down was replanted. Replanting on a large scale and planting where there had not been planting before would give a great deal of employment to the people. He could not help hoping that the time would come when the Government would see the advantage of making much more strenuous efforts to plant the Highlands than they had made in the past. The afforestation of the Highlands was one of the few things to which they could look forward to as a source of wealth to the country.

Alpine Plants and Shrubs.

(Continued from page 294.)

Acena, a genus of very neat, compact, rockery evergreens, with tiny foliage, forming dense carpets on ledges of rock or bare level parts, and furnishing a good ground for taller plants. The species are wholly confined to the Southern Hemisphere. *A. argentea*, foliage glaucous grey, attains a height of about 4 in. and is in contrast, as regards foliage, with *A. microphylla* (syn. *Novae Zeelandicae*), which forms a dense carpet of bronzy-green foliage about 3 in. high, and bears in summer and autumn rosy-crimson flower heads in the greatest profusion. Both species are easily increased by division, are perfectly hardy, and grow in ordinary soil, preferably in sandy loam of a somewhat moist nature, which should be provided for in planting on ledges of rockwork. *A. millefolia* and *A. pulchella* are graceful plants for hanging upon rocks or banks, but they are never at any time showy.

Acantholimon (Prickly Thrift), a genus of branching cushion-like plants, natives of Eastern countries, extending from the east of Greece through Syria to Western Tibet. One, indeed, hails from Mount Anarat, a real vegetable marvel, resembling a minute glaucous hedgehog. This is named *A. androsaceum*, an ally of *A. glumaceum*. The latter produces dainty spikelets of rose coloured flowers, very distinct and beautiful, in June and July. *A. venustum*, with broader leaves, and many flowered spikes, is also lovely. The *Acantholimon*s require warm sunny situations and sandy loam, moderately enriched with leaf mould. They grow about 6 in. high, and are very compact in habit.

Achillea (Milfoil or Yarrow) grows in ordinary garden soil, and forms a large group with prettily cut, often silvery foliage. Most are suitable for the herbaceous plant border, while a few of the smaller species make delightful rockery plants. *A. aurea* requires a warm position; flowers golden yellow, produced both in early summer and autumn. It attains a height of 12 in. to 15 in.; and with *A. aegyptiaca*, finely divided white silvery leaves, is desirable on warm sloping banks, being excellent for cutting. *A. Clavenna*, a native of Cornithia and the Austrian alps, has hoary leaves, jagged at the margin, dwarf, tufted, flowers white in corymbs 9 in. to 12 in. high. This is suitable for sloping banks of dry sandy loam, and is very fine as an edging plant. *A. rupestris*, forming dense tufts about 3 in. high, with dainty white flowers, is a delightful rockery plant, growing well in poor sandy soil. *A. tomentosa*, of creeping habit, forms a dense green carpet, and produces clusters of bright yellow flowers very freely, requires a dry soil. *A. umbellata*, dwarf, compact, and tufty, seldom exceeding 9 in. in height, and which is white, thrives on rockwork in sandy soil.

Adonis vernalis (Flower of the Gods) may be mentioned as one of the most charming plants for the slopes of rockwork where the soil is of a moist, sandy loam; the yellow, Anemone-like flowers, 3 in. across, having a charming effect in spring. *A. pyrenaica* is even finer, frequently producing two to three flowers on each stem. An admixture of peat or leaf mould to loam is advisable for these plants when the soil is poor.

Æthionema differs from the majority of Crucifers in being of elegant habit with wiry stems, half-shrubby, and with glaucous foliage. *Æ. cordifolia*, 2 in. to 3 in. high, bears clusters of soft rosy pink flowers in May and June. This lovely rock plant requires to be grown in fissures among limestone. The situation for this species, also *Æ. grandiflora* and *Æ. pulchella* (each requiring calcareous loam) should be sunny. They are also fine on sloping banks among stones.

Agave utahensis, a true alpine Aloe, perfectly hardy and of easy culture, forms silvery, glaucous, rigid, erect rosettes, and thrives in stony earth, dry in winter. The position must be warm and sunny.

Ajuga (Bugle) species, inhabit pastures, either mountain or lowland, and are suitable for rough rocky places, particularly *A. genevensis*, *Brockbanki* (blue flowers in May), and reptan varieties. They may be grown on northern aspects in sandy moist soil.

Alyssum (Madwort) are of easy culture in light or dry soil, being seen to most effect on sunny banks of calcareous gravelly loam. *A. alpestre*, 2 in. to 4 in. high, with dense clusters of yellow flowers in April to June; *A. montanum*, a stronger grower, very handsome on dry sunny banks in May and June; and *A. saxatile compactum*, with dense spikes of the finest yellow, in April and May, and its variegated leaved form, are the most desirable. But *A. spinosum*, a charming silvery leaved plant, about 6 in. high, with white flowers in June, nor *A. citrinum*, must not be overlooked for the select rockery. The *Alyssum*s are excellent for massing on rockwork, and are easily raised from seed. *A. maritimum* (Sweet Alyssum) a well-known prostrate plant, may sometimes be seen growing on walls, particularly in the West of England, and, though annual, assuming a perennial character.

Anagallis tennella (Pimpernel), a native species found in bogs, is a creeping plant. It may be grown easily in the rock

garden where the ground is moist and spongy, and the vegetation dwarf.

Androsace. The members of this genus are near allies of the *Primulas*, and should be planted firmly in perfectly drained rock fissures in gritty loam and peat where it can root deeply. But no wet must gather or lie about them, yet they must never suffer from drought. *A. carnea* has small flowers, pink or rose with a yellow eye, produced in March to May. *A. c. eximea* is a bolder form, dense, cushion-like, with rosy crimson heads of bloom. It does best on sloping banks with an eastern aspect, on light, moist, peaty soil. The Rock Jasmine, *A. chamaejasme*, forms large rosettes of fringed leaves, and the blooms are borne on stout little stems, seldom rising 5 in. high; flowers white. It should get abundance of water in summer, being given an open spot in the rockwork, the surface nearly covered with small pieces of broken rock to prevent evaporation. *A. laggeri* is exquisite, and *helvetica*, requiring full exposure to sun, is also good. *A. lanuginosa*, a Himalayan species, is the best of all. It has a trailing habit, hence should be planted so that it falls over the edges of a low rock, and should be assigned a sheltered but open situation. *A. l. oculata* is more compact, and flowers freely and continuously during summer and autumn; flowers rosy-lilac. *A. sormentosa* prefers a dry calcareous loam, and produces its rosy, white-eyed flowers in trusses. *A. villosa* has leaves and stems thickly covered with soft white hair or down, the plant throwing out runners, therefore suitable for planting so that one side of the specimen may fall down the face of a rock. It should be planted in fissures of rockwork, and in all cases ought to have abundant moisture. *A. Vitaliana*, the yellow *Androsace*, bears rich yellow flowers. The species of this genus do not, as a rule, thrive in a smoky atmosphere. They succeed, however, on fully exposed ground in sandy peat.

Antennaria (Cat's-ear), a genus of composites, includes a few species suitable for rockwork. *A. candida* grows about 1 in. high, forming a dense carpeting of silver leaves. *A. hyperborea* and *A. tomentosa* are neat growing plants with white blooms of Everlasting or Immortelle character.

Anthemis (Chamomile) species are mostly not worth growing, but *A. Aizoon*, with prettily cut leaves, and white Daisy-like flowers, may be given a place.

Anthyllis embraces the Mountain Kidney Vetch, *A. montana*, growing 4 in. to 6 in. high, producing pink Pea-like flowers in May and June.

Antirrhinum asarina, a greyish procumbent plant, with long-stalked leaves and yellowish flowers, thrives in sandy loam in a warm situation. On poor, dry, stony banks and slopes, even the rockwork itself, the Tom Thumb varieties of *A. majus*, the common Snapdragon, give a fine return in flowers.

Thymus (Thyme) species are charming for the drier parts of rockwork. *T. alpinus*, *T. azoricus*, *T. corsicus*, *T. lanuginosus* (pleasing at all seasons), *T. rotundifolius*, *T. serpyllum*, and var. *album*, with *T. vulgaris*, erect, twiggy, dwarf shrub, with greyish leaves and fragrant, are the most desirable species, and for sunny banks in the semi-wild parts of the rock garden, few plants make a finer show in June to August. Of all the species, *T. serpyllum*, and its variety, *album*, make the finest show on a sunny dry bank. *T. rotundifolius*, a Pyrenean species, is even more floriferous than *T. serpyllum*. The three mixed on a bank afford a charming display. The Thymes are excellent for clothing old ruins and dry arid slopes in the rock garden.

—G. ABBEY.

(To be continued.)

Low's Ampelopsis.

At the Royal Horticultural Society's exhibition on October 1 last year, a new form of *Vitis inconstans* was shown by Messrs. Hugh Low and Co., Bush Hill Park, Enfield, Middlesex. This new *Ampelopsis*—for under this name is this species of *Vitis* known in gardens—was admitted to be quite distinct, and in recognition of its decorative or ornamental qualities an award of merit was accorded. We described the leaves as like those of the Gooseberry, and a glance at the illustration serves to show the likeness. The plants were shown in 5 in. pots, and had made shoots 3 ft. to 5 ft. in length, the leaves being of a deep purplish colour.

Messrs. Low's description is: "This handsome self-clinging climber supersedes all other plants of its class. Of similar habit as *Ampelopsis Veitchii*, the older leaves in summer are of a dark metallic green, brightening to a fresh Apple-green towards the extremities, and changing with the season to a warm tint in autumn. In size the leaves are small, beautifully dentate, and the edges being prettily crimped, give a very pleasing effect to the eye, when the plant is growing on a wall or rambling over pillar, column, or an old tree stump. This charming novelty clings closely, and, growing rapidly, speedily covers, although the individual growth is so 'lacey' in appearance."

Renovating a Lawn.

Old lawns, and not a few recently-formed for that matter, become thin and bare in places, mostly from overwear in the case of patchy lawns. This is very common in the case of small lawns, the players of games having no regard to anything but the attainment of their pleasures, and thus the lawn suffers from overwear. This overwear in many places cannot be avoided other than by abstention from play, the pitch being

unchangeable from the limitation of the area.

In such cases I know of nothing better than the cutting out of bare patches and refilling them with fresh turf. This has often to be done on small patches, and in most cases once a year, particularly on club and hired ground. Work of this nature is usually done in the autumn or during winter up to the middle of February or even March. After patching up, the whole ground is given a top-dressing of rich compost or soil mixed with lime in the proportion of one part of lime to five parts of compost, this being previously prepared. An iron rake run over the lawn to loosen the surface and drag out moss should precede the application of the top-dressing of compost, this being all the better if 1½ lb of lawn manure (those advertised in the *Journal of Horticulture* are suitable) be added to two barrowloads, or two hundredweight to ten cartloads, and well mixed. Two barrowloads of the prepared compost per rod (30½ square yards), or ten cartloads per acre spread evenly on the lawn, and left a fortnight, then a sowing of grass seeds, duly raked in and lightly rolled down, will quickly cover the ground with young healthy grass.

The question arises, when is this work to be done? From a consensus of experiences I consider the best time is late summer or early autumn for patching up an overworn lawn, or as soon as the ground can be spared from play, the grass seeds being sown in October. The grass seeds take no harm in an ordinary winter, but there is danger of losing the clovers more from an autumn than from a spring sowing. Clover,

however, should not be included in a mixture for croquet, tennis, bowling, or cricket grounds, therefore there is no disadvantage on that score.

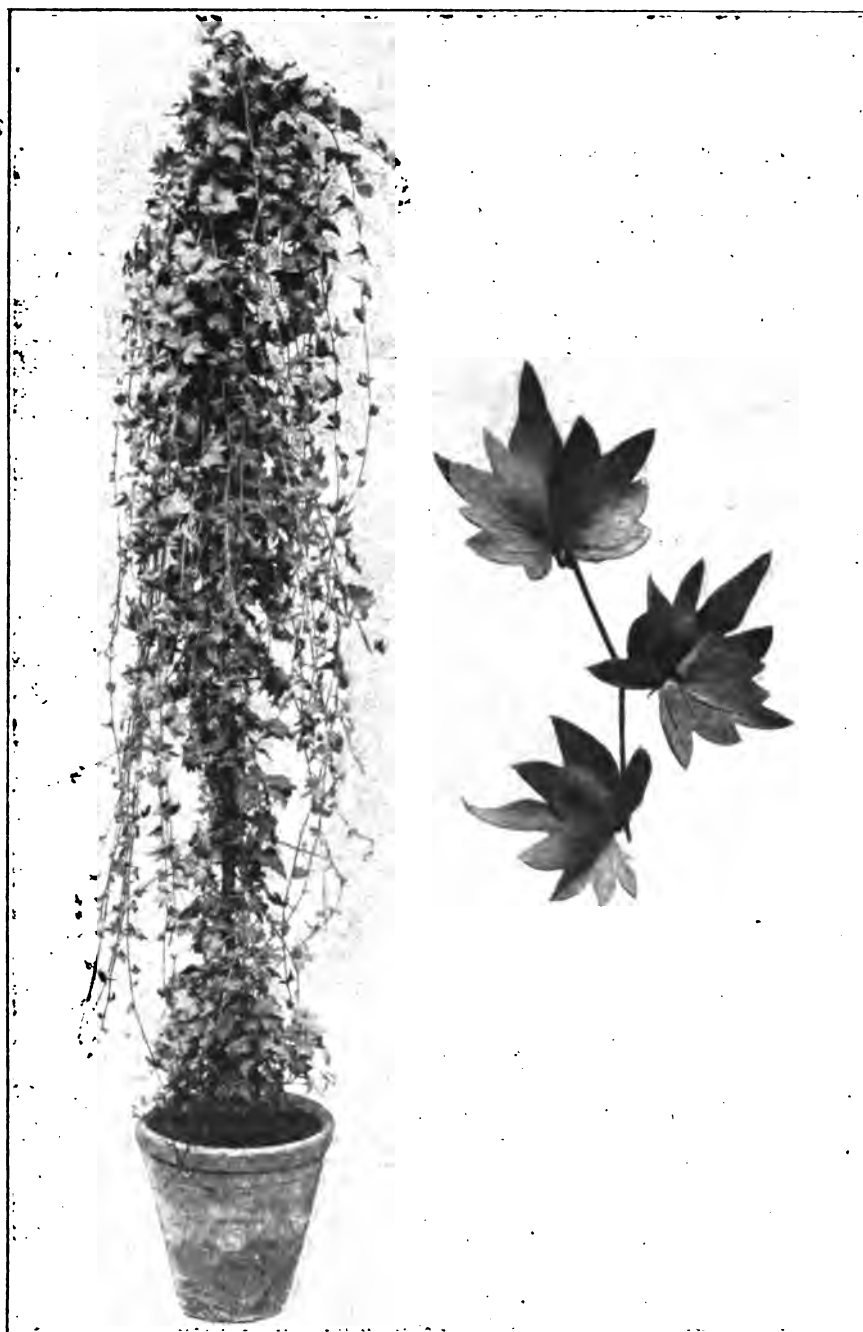
But work of this description is usually deferred until the days begin to lengthen, and the snow disappearing shows the bare patches, and reminds the players that something must be done. This, in the southern and western counties of England and in Ireland may be renovated early in February, and the seed can be sown early in March. In the Midlands a fortnight or three weeks later may be soon enough to act in the spring, the top-dressing and scarifying by rake or harrow preceding it.

Do this in March, and sow the seed early in April. In the north the date of sowing is necessarily later, say the third week in April. In certain cases sowing may be extended into May. Late spring or early summer sowing, however, is not advisable, as in case of hot dry weather ensuing, the plants, however well the seed may germinate, have poor chance of developing.

The quantity of grass seeds to be sown should not be less than three bushels per acre (1½ pints per rod), as it is easier to secure an even spread on a large than a small area. Where the grass is thin, a fuller seeding is advisable; indeed, double quantity is desirable in all cases.

In the case of lawns generally that become thin and bare from various causes, such as poverty, overwear, encroachment of weeds, or unsuitability of grasses to the land, much in the way of improvement may be effected by scarifying the surface, by liberal top-dressing, and by sowing seeds. Though the season for these operations is somewhat late, the work may be done after the lawn has been first mown. This is effected by a vigorous use of

the rake twice in different directions, which imparts a sort of temporarily ruined appearance. Now apply a top-dressing of rich, sifted loam or leaf mould and lawn manure, say 100 parts of rich mould and one part of lawn manure, or five cartloads of soil and two hundredweights of fertiliser, or one barrowload of rich mould and one and a quarter pound of lawn manure, the former being for an acre and the latter for a rod of ground. Mix the two together a fortnight or three weeks, turning the heap two or three times before use, and spread the mixture



GENERAL APPEARANCE OF PLANT.

ACTUAL SIZE OF LEAVES.

Amelops inconstans Lowl.

evenly over the lawn, lightly applying the rake, and leave it for a few days. On the first fine day run the mowing machine over the lawn or switch over with a scythe, and the surface being fine, sow the grass seeds. Rake the seeds in, and cover them as much as possible, and finish with a light rolling. The seeding should be done when the herbage is dry, for when this is wet the seeds readily adhere to the grass, and the raking does not dislodge them.

For keeping off birds I have found the best scarers to be network of black thread affixed to small sticks about 3in from the ground, the strands not needing to be nearer than 3ft, but crossed lengthwise and crosswise, so that a marauder is sure to touch one of them, and be thoroughly startled and take his departure.

How soon will the lawn so treated be fit for use? On this point much depends upon the weather, but generally from a renovation sowing of seed in spring, say April, the plant rapidly fills the ground, and the turf or sward after a mowing or two, not too closely nor too often, is firm enough for anything by Whitsuntide; and when the atmosphere is genial and the lawn receives due attention, the turf becomes more closely set and velvety as the days roll by.

Sometimes, too, evils arise from the top-dressing with rich compost, especially when lime is not used as a component, and from the seed not being free from weed seeds or even from the presence of clovers. The former means worm casts. The roller is an excellent thing for gathering up the castings or pressing them down, as well as for securing an even surface and causing the grass to tiller. But this is not enough, the worms must be got rid of, and there are various means of effecting this; but the old-fashioned treatment with lime water is still the best, and benefits the grass. A barrel holding thirty-six to forty gallons of water may have a peck of freshly-burned lime placed in, and then be filled with water, stirred briskly, and left to settle for two or three days. This apparently clear liquid, freely used by means of an ordinary water-can, will bring the worms from their burrows, and they can be swept up, collected and destroyed in salt water or brine; then buried in the manure heap.

The matter of dealing with Clovers, Daisies, Plantains, and other broad-leaved plants is individually a serious affair. Two artificial manures, sulphate of ammonia and nitrate of soda, are known to be prejudicial to these plants. They are generally mixed in equal proportions, though sometimes applied separately, but whether mixed or separate, the proper dose is 1lb per 5½ square yards. Even this amount will burn the Clover leaflets and other "holding" foliage, though not hurting the grasses. It is usual, therefore, to give several dressings during the season, and in dry weather each must be followed by watering. The mixing of the fertilisers with five times their bulk of rich loam or leaf mould a fortnight before it is applied, turning two or three times, has a very beneficial effect.—G. HERZ.

Notices of Books.

THE JOURNAL OF THE ROYAL HORTICULTURAL SOCIETY; price 7s. 6d. to non-Fellows.

Part I. of the twenty-third volume of the Journal of the Royal Horticultural Society has been published. It will be followed by part II. some time during next month. The present volume, like its immediate predecessors, comes to us in an agreeable form, namely, with the edges neatly cut. This has been a long-standing need; and those who do not care for the cut volume can, we do not doubt, have one that is uncut upon notifying the secretary.

Among the papers herein published is one from Mr. R. H. Curtis on "The Relation of Meteorology to Horticulture," a subject which has engaged more than usual interest in recent years. It serves to show that there is a growing interest in, and knowledge of, the science of meteorology. This science is still very largely empirical, but wonderful strides are being made in adding to our weather wisdom.

Another very well-written and important contribution is from the pen of Mr. H. Morgan Veitch, solicitor, entitled "The Amateur and Horticultural Law." This is closely packed with seasoned information, and its inclusion adds immensely to the value of the volume.

Recent R.H.S. Journals have also dealt at considerable length with features of Japanese gardens and gardening, and there is still another essay in this one. The subject is "Japanese Dwarf Trees, Their Cultivation in Japan, and Their Use and Treatment in Europe." The remaining papers savour of the purely botanical, and include two by Professor Henslow, one by Mr. Drury, and one by Col. Beddome. Mr. W. P. Wright's contribution on "Arches, Pillars and Pergolas" we have already reprinted. The second half of the volume is devoted to the reports of exhibitions and of the Wisley trials.



Plum Flowers and Frost.

I should like, through your columns, to ask "J. W., Evesham," whose hardy fruit notes are always so interesting, whether he thinks 6deg of frost, accompanied by a fierce north-wester and hot sun in the day time, likely to seriously compromise the chances of Plums now in blossom? This is the sort of weather we have had here for nearly a week, and I must confess feeling a bit uneasy about my Victorias, Czars, Early Rivers, Monarch, and Early Favourite, now in full bloom. Fortunately Early Transparent, Prolific, Belle Louvaine, and old Green Gage are not yet in blossom, and a change to milder weather may come any day. Has there been any reliable statistics as to the number of degrees of frost calculated to do serious injury this way? I am aware frost after cold rain or hail does more serious injury, but I do not find so much harm done in very dry weather.—W. J. MURPHY, Clonmel.

The Longevity of Vines.

The notes on page 281 on this subject by "H." are interesting. I say "Yes," to the query whether there is any ground for the impression that a fresh gardener finds pleasure and satisfaction in replacing old Vines with new. Now comes the question, What constitutes an old Vine? Under some methods of culture a Vine may become old at twenty years, and under an opposite system a Vine at that age is comparatively young. "H." does not give us any idea of what number of years he has in mind. Under certain conditions a new gardener would be justified in suggesting the removal of old Vines and replacing them with new, because the latter would be the quicker method of producing high-class Grapes. It is a well-known fact that larger bunches of high-class Grapes are more easily obtained from Vines with youth on their side, than from what are termed old canes of, say, fifty years' service. It is natural for a new gardener, and proper, too, to [wish to] excel in anything that his predecessor did before him. Sentiment is of little value nowadays. Better results are, or should be, the aim of all who are interested in their employers; therefore, I say it is a wise course to improve upon methods adopted by a predecessor, assuming, of course, that legitimate means are employed. No sensible gardener would make a boast of what he intended to do, but would set about to achieve his object unostentatiously, and allow the result to prove his capability.

I am digressing somewhat from the object I had in penning these lines, and hasten to say I am not an advocate of sentimentalism entering into "practical politics." In all my writings on Grape culture I have advocated that Vines should be planted with a view to their enjoying thirty years of existence and satisfaction. I find, however, I made a mistake in the number of years; I should have said fifty years, certainly. Vines I had the pleasure of raising from eyes in the year 1878, are to-day as promising of a full crop of fruit as they ever have been, and from their appearance I would not like to hazard an opinion when they may be expected to show signs of being old. I can, however, point to two instances, especially, where Vines were planted in the same year, and under similar circumstances produced Grapes that competed against each other and shared the honours. But both have been replanted quite ten years ago; therefore the question I asked, "When does a Vine merit the title of being old?" comes strongly into prominence here. What is the cause of Vines exhibiting signs of weakness, which is too frequently termed old age? I unhesitatingly say the adoption of a wrong method of pruning in their initial stages of growth, and also overcropping. In the former case a too great a length of rod is allowed to remain at pruning time, with the idea of achieving some feat of furnishing the house quickly with branches. On the face of it, with the inexperienced this seems to be a feasible plan to adopt. With Vines restricted to one rod or stem, the results are different to those obtained from Vines which have no restriction in rods nor of space for their roots; as, for instance, when but six Vines are allowed to fill one 100ft house (length) of 20ft length.

Whether it is wise to fill a house with but a few Vines on the many branched system, depends purely upon circumstances of variety, extent of glass accommodation, and personal requirement of fruit. As a rule the ordinary vinery is planted with a variety of Grapes, and the rods are restricted at first to the one-rod system. As time goes on, for various reasons an occasional second rod will be encouraged on some varieties, at the expense, perhaps, of removing some other variety for sundry

reasons. The letting-up of an extra rod is the most ready means of filling a gap, because the new rod can be making progress during the existence of the one condemned, by the removal of the lower spurs, to make room for the newcomer.

I think more mistakes are made in pruning young Vines than in any other detail in Grape culture. If the base is not set on a right foundation, it is useless to look for a satisfactory superstructure. The conditions are the same with a house planted with one variety only; as, for instance, Muscat of Alexandria on single canes. In perhaps no other variety does the error in pruning show so quickly as in this. Weak places in the rod can be found ever after, if too great a hurry was indulged in, in the early days of existence. I agree it is wise to renovate some Vines rather than pull them out, if circumstances point to satisfactory results, but for the aspiring gardener who has to win his spurs in the exhibition tent, new Vines, properly managed, will give the best return, and in the shortest space of time. It is only in quite exceptional circumstances that renovated old Vines will give exhibition Grapes. Black Hamburgh, perhaps, is the only exception.—E. MOLYNEUX.

Nature v. The Florist.

Are we working with or against Nature? is a question which as a raiser, often presents itself to my mind. In Nature the survival of the fittest is the great law. For instance, take a nest of birds. There are, say, four eggs, and in due course four young birds; but one hatches an hour or two before the other. It is constitutionally strongest, and it gets the first worm or insect, and the advantage of this two or three hours' start is such, that that bird is for the rest of its days the biggest and strongest. But one egg hatches a few hours late, with what result? The other birds have already gained strength, and in consequence the weaker one gets a scanty share of victual; and, weak at the start, it either quickly dies, or, should it survive till the birds are fledged, and the cat gets one, ten to one it is the weakling that is caught, and finally only the strong birds, which got the first worms, survive and live to perpetuate the race.

But apply the theory of the survival of the fittest to horticulture, and what do we find? Why, the opposite in many cases; or, in fact, the survival of the most unfitted. Take for a moment a number of seedlings. If the seed were sown and the seedlings left to struggle for themselves, what would be the result? Practically the survival of the fittest from Nature's point of view, but from the florists' point of view, rubbish. Many times have I seen a bed of seedlings with huge robust plants, towering above the others and burying their weaker brethren, but when these giants flowered, oh, dear!—many of them can scarcely be termed flowers at all. Then a series of weeding takes place; the strong seedlings are rooted up, light is allowed to reach the weaker plants, and then flowers begin to appear which please the enthusiast; but, nevertheless, they are Nature's weaklings.

It may appear strange, but it is not the less true that size of bloom is not of a necessity combined with a strong constitution. This is very notably the case in species where both double and single forms are found. In the case of plants producing double flowers, the constitution is by no means always so strong as in the singles. Why do our florists' flowers fail to stand the test of time? Well, the reason is not far to seek. Nature, left to itself, is unmerciful to the weakly youngster. It must go. There is not the slightest care taken to give it an extra chance, even if it would be the loveliest flower ever seen. It succumbs to circumstances; but when man steps in, what do we find? The florist has a set ideal of beauty, and rightly so; we must have some definite lines to work upon, or chaos would result. Thus, out of a batch of seedlings fifty per cent. say are ruthlessly plucked up and discarded; they are Nature's fittest. Then, amongst the remainder, there may be some which possess a fairly good constitution and moderate blooms, and possibly one in which all its strength and beauty seems to be concentrated in its flowers.

Now what takes place? Nature says, Let it go, it is unfit to live; but the florist tends it with jealous care. It is planted in the best of prepared soil or potted in the best compost. Artificial manure, graded to a nicety as regards the component parts needed by the special subject in hand, are given, so that it scarcely needs to struggle in the slightest degree for a livelihood, and presently a gorgeous bloom rewards the effort of the grower. But what of the constitution; will it stand? For a year or two there will be partial success as succeeding generations are kept up to the mark by more or less artificial means, but gradually it becomes more difficult to keep the stock healthy; and, finally, very often even in a couple of years it is impossible to grow blooms at all.

There is yet another side to the question. In the case of our nest of birds not only was the weakling eliminated in the first batch but by so doing they were prevented from trans-

mitting a weakly constitution to another generation, thus keeping up a very high standard year after year. Not so the florist. The beautiful though weakly seedling is in its turn seeded from, and the weaker progeny again often has the desired points, and is selected for further trial. This goes on from generation to generation.

Of course, it is doubtless quite true that cultivation to a certain extent counteracts the weakening influence; but, nevertheless, it does not wholly do so, and anyone who grows Chrysanthemums, for instance, knows full well how many per cent. of the varieties have sufficient constitution to stand for even three years. The whole routine of the garden is rather tending towards the succouring of the unfitted (constitutionally) rather than the fittest. Should the progeny of a weakly parent be prone in consequence to the attacks of disease or insect enemies, do we discard it? Decidedly not; rather we bring to bear a whole army of insecticides, to war against the enemy, when really, if we look at the matter closely, it is simply that we are paying for our willingness to disobey the law of Nature, and retain the variety which has lost its original natural vigour.

One other serious cause of new varieties failing constitutionally is the rush of modern times. Hardly has a seedling produced a grand bloom than it is propagated rapidly, first by the raiser, who, to give him full credit, does not as a rule need to overpropagate, but still he is the first propagator. Then the retailing nurseryman buys, and, of course, he does not purchase more plants than he is obliged to, and then at any rate in some cases the stock-plants are "rushed" to such a degree that there is scanty chance of the cuttings possessing even a ghost of the stamina which ought, under proper conditions, to be transmitted to the progeny.

Many varieties of florists' flowers when shown as seedlings in grand form by the raiser, practically vanish the following year or so, and then gradually re-appear, plainly showing that the constitution is for the moment greatly impaired, and then under more rational treatment the plants regain some portion of it. We fear we must not tell tales on this subject, but as an instance that came under our notice, a plant of a new flower was sold in April, and at the end of May had been forced into producing twenty-three cuttings, which were in various stages of rooting; but woe to the constitution of those cuttings. Many other side issues affect the question of the vigour of new varieties in a greater or lesser degree, such as the seeding from the few remaining stigmas of almost perfectly double flowers, and so on; but we fear to run on unduly, as the survival of the fittest cannot wholly be the florist's rule, although perhaps we should be following a safer line of action if we compromised the matter by splitting the difference, and retained varieties possessed of at any rate a larger share of what in Nature would constitute fitness.—P. P.

More About "The Village and the Landlord."

When writing my note about the above, I had no intention of being opprobrious. Your correspondent seems to think that I am more alarmed at Tariff Reform than at his other views. One thing is certain, I need not bother to analyse his article to find out that he supports Tariff Reform; and as he throws down the gauntlet on that matter, I will, to the best of my ability, answer him. Mr. Carpenter is a man who has given very many years of study to Social Reform, and I do not think it is possible to read his pamphlet and answer it in such a manner as your correspondent does. It is easy to quote one or two things and say, "We hardly think we need any further argument for Tariff Reform." That statement does not answer his plea, which I stated previously. Tariff Reform, or to put it more plainly, Protection, is one of the most fatuous arguments put forward, as I think the working classes of this country, of which I am one, will know to their cost if ever it should come to pass. It is only another red herring brought across the trail so that they shall not scent the real danger. The reform most needed is the protection from the ever-increasing burden which private ownership in land places upon our backs. The landlord sleeps, but thrives. Seeing what quarter the cry of Tariff Reform emanates from is enough; it is generally from someone who has an axe to grind. It is placing a tax on the consumer. It might benefit the producer, and it might not. One thing is certain, and that is, it would benefit the monopolist. The large farmer would benefit, but the small farmer would not. If the production of food were made a national affair, or as for the navy, and managed for the benefit of the whole community, we could still hold our own against foreign enterprise. What we want is more co-operation, and better organisation. At present it is all topsy-turvydom; things are sent hither and thither without any particular aim or method. Eggs are 8d. a dozen in one place; in another you can hardly buy them at eight for 1s. I could write a good deal more on the subject, but perhaps it is enough for the time being.—A. GREENWOOD, Adel, Leeds.



Loganberries for Field Culture.

A correspondent writes to say that in about a month's time he is planting two acres with plants now being raised from "eyes" in a cold frame, where they are coming on very well, and after duly hardening them off, they are to be planted in the midst of a field of ten acres, the two acres being about 250 yards long by 38 yards broad, sloping south, and shielded from west winds by a small wood. The land is rather light, and can be worked very fine. With these particulars we may say, as regards "any wrinkle as to the planting, cultivation, distance, &c., and generally any information on the subject," that—

1. Doubtless the best and most reliable plants are those raised from layers or "eyes"—parts of parent plants that are known to produce good crops of the finest fruit, or what is commonly known as the original stock. This is very important, especially from a commercial point of view, for seedlings, as might be expected, are not reliable in respect of cropping properties and quality of fruit. Seedlings, as a rule, make an enormous growth of canes, and the crop and quality of the fruit is not correspondingly superlative.

2. The planting distance is, as yet, a vexed question. A grower, in giving plan for a mixed fruit plantation, places the stations 9ft between rows, and 6ft in the rows, the soil in fields being much poorer and less deeply stirred than in gardens. This is just half the distances this successful grower and adviser allows, who yet attains very satisfactory crops of Loganberries under garden culture, the rows being 18ft between, and the plants 12ft asunder in the rows. The distances first named were adopted at planting, and the growths being so strong, every alternate plant and row was removed, the lifted plants being utilised for planting by and covering a wooden fence, and this, facing the south, gave fruit of higher flavour. Considering that in rich and deeply stirred garden soil Loganberries sometimes make leading growths 15ft to 18ft long, and produce fruit on the greater part of the shoots or canes, the distances for the plants must be proportionately extended. Even in fields regard must be had to soil influence. If the soil be ordinary arable land, we should advise for the ground in question, rows 9ft apart, and the plants 6ft asunder in the rows. On the other hand, if the soil be rich and deep in staple, we should allow 12ft between the rows and 9ft from plant to plant in the rows, thus having nine, instead of twelve rows, the 6ft over being divided between the two outside.

3. The matter of distance is very important from another point, viz., the young growths or canes are very tender, soft in nature, and easily broken or damaged by winds, or by rough treatment. This must be carefully guarded against, and that implies plenty of room so that the annual cane-growth may not be twisted or broken, for on these, duly matured, depends the succeeding year's crop.

4. In order to promote a good growth of young cane Loganberries require abundance of moisture in the early summer, as well as for the benefit of the current crop. A dry time from June to August has a very great effect on both the current year's and the following season's crops; therefore, a mulch of partially decayed manure over the roots, applied not later than the beginning of June, is of great importance, especially on light soil. Indeed, Loganberries, like Blackberries and Raspberries, require liberal top-dressings of manure in light soils, and often make just all the difference between success and failure, profit and loss.

5. When the crop is gathered, there being a difference in this respect of three weeks or a month between the southern and northern counties of England, the old canes should be cut out. This may somewhat restrict the assimilated matter, but it means that effected being concentrated on the young canes, and in their having the full benefit in maturing of the sun and air, the ripening or hardening of the wood being a main factor in respect of the following year's crop.

6. What about the marketing value of Loganberries? The fruit is stated to possess exceptional value for preserving. A large wholesale and retail grocer tells us that the Loganberry preserve is not esteemed—practically unsaleable, nobody likes it, and we do not wonder, as the sample shown us "worked," and the jars were running over. Is this due to the acidity of the fruit? The fruit may have been gathered before fully ripe, or not sufficient sugar used. Unless perfectly ripe before gather-

ing, the Loganberry has too much acidity to be used for dessert, and possibly also for preserving purposes. On these points the results of experience are greatly to be desired, ours being that there is little in the Loganberry to excite admiration as compared with the Raspberry, its merits being more of the Blackberry order.—A. S. A.

Societies.

R.H.S. Scientific Committee, March 31st.

Present: Mr. E. A. Bowles, M.A., F.E.S. (in the chair); Rev. W. Wilks, M.A.; Messrs. H. T. Gussow, G. S. Saunders, E. M. Holmes, A. Worsley, J. T. Bennett-Poë, H. J. Elwes, L. de B. Crawshay, G. Gordon, G. Massee, A. R. Rolfe, and F. J. Chittenden (secretary).

Inheritance of Albinism in Orchids.—Mr. C. C. Hurst, F.L.S., sent the following notes in relation to this subject, which has been brought up at several meetings recently. "Since my last communication, I have had an opportunity of examining some plants of *Paphiopedilum insigne* Sanderæ. Much to my surprise, I found distinct traces of purple sap in the basal margins of both the old and young leaves. The plants were not in flower, but I am told on good authority that some minute spots are also to be found on the dorsal sepal. In view of this, it would appear that *P. insigne* Sanderæ, so long regarded as an albino, is in reality a coloured form in which the purple sap is present in minute quantities. In accordance with the provisional scheme suggested in my last note, *P. insigne* Sanderæ will therefore be carrying both the colour factors C and P, and when mated with albinos may be expected to give coloured hybrids, as it has done in the case quoted by Mr. Rolfe. It would be interesting to know if the two other yellow forms *P. insigne* Sanderianum and *P. insigne* Macfarlanei, recorded as unspotted, are true albinos, and what they produce when crossed.

"If *P. insigne* Sanderæ is not an albino it must be deleted from my tables of albino crossings, which will now read as follows:—

TABLE A.

- 1, *P. callosum* Sanderæ (P) × *P. callosum* Sanderæ (P) gives albinos (PP).
- 2, *P. Lawrenceanum* Hyeannum (P) × *P. Lawrenceanum* Hyeannum (P) gives albinos (PP).
- 3, *P. Lawrenceanum* Hyeannum (P) × *P. callosum* Sanderæ (P) gives albinos (PP).
- 4, *P. bellatulum* album (C) × *P. callosum* Sanderæ (P) gives coloured hybrids (CP).
- 5, *P. bellatulum* album (C) × *P. Lawrenceanum* Hyeannum (P) gives coloured hybrids (CP).

TABLE B.

- 1, *P. bellatulum* album (C) × *P. bellatulum* album (C) should give albinos (CC).

Mr. Rolfe's theory that the colour reversions are due to the fact that the albinos crossed belong to diverse species, fails to account for the cases in Sweet Peas, Stocks, and other plants where two albino individuals of the same species, variety, and race, may revert to coloured forms when crossed. On the other hand, the conception of complementary colour factors satisfactorily explains all the known phenomena of colour reversions in plants and animals, so far as they have been critically and experimentally studied."

Psocides Injuring Plants.—Some time since Mr. Stanton Brown, A.R.H.S., of The Cedars, Broadhall, Derby, sent a number of insects from Oleander, &c., which were identified as *Cæcilus Dali*, an insect belonging to the Psocidae, and known only to feed upon spores of fungi and similar things. Mr. Brown now sent some pieces of recently struck cuttings of *Salvia splendens* upon which the insects occurred in great numbers. These cuttings were injured by insects, and Mr. Brown said that the injury was solely due to the work of these insects, which did not appear at all particular with regard to the plants upon which they feed. This adds another to the already long list of insect pests in plant houses. Mr. Saunders took the plants for further examination.

Larch with Gall-like Growths.—Mr. H. J. Elwes showed a one-year-old shoot of Larch taken from a young tree in his nursery having gall-like growths along several inches of its growth. The shoot was referred to Mr. Massee, who undertook to obtain some information upon it if possible.

Orchid Hybrids.—Mr. R. A. Rolfe, on behalf of M. E. Cappe, Vésinet, France, exhibited two very diverse hybrids raised from the same seed pod of *Lælio-cattleya* Cappei (a hybrid from *L. cinnabarina* × *C. Warscewiczii*), the result of fertilising a flower with mixed pollen from *Lælia flava* and *Cattleya Mendeli*. One flower appeared to be a true hybrid between *L.-c.* Cappei and *C. Mendeli*, whose characters were well blended, but the other closely resembled *Lælia Cowani* (a supposed hybrid between *L. flava* and *L. cinnabarina*) in size. It was suggested as a case of dissociation of the "mixed charac-

ter" whereby an ovule of *L.-c. Cappei*, from which the character of *C. Warszewiczii* had been eliminated, had been fertilised by a pollen tube from *Laelia flava*.

Fruit of *Euonymus japonicus*—Thomas Peed, Esq., of High Cliff, Ventnor, I.W., sent fruits of *Euonymus japonicus*. This plant not uncommonly produces ripe fruits in this country, and Mr. Chittenden said he had on one occasion found a seedling on the town rubbish heap at Chelmsford.

Scale Insect on Holly.—Mr. Saunders reported that the insect attacking Holly shown at the last meeting from Ipswich, was the very local scale insect, *Aspidiotus britannicus*. He recommended that the Holly hedge should be thoroughly sprayed with paraffin emulsion, taking care that both surfaces of the leaves received the spray; or the hedge might be fumigated with hydrocyanic acid gas, if some means of enclosing it could be devised.

Yucca and Agave Disease.—Mr. H. T. Gussow reported that he had examined the leaves of *Yucca* and *Agave* shown at the last meeting by Mr. Saunders, and found they were attacked by the fungus *Coniothyrium concentricum*, a common fungus in America, and previously recorded in this country. He recommended that to stop its spread the leaves should be dipped in a one per cent. solution of copper sulphate.

National Fruit Growers' Federation.

POTATO 'BLACK-SCAB'.

Representatives of the National Fruit Growers' Federation were received at the Board of Agriculture last Friday, and the following suggestions were put forward for the extermination of the disease known as "black scab in Potatoes."

1. That the "black scab" of Potatoes be made a notifiable disease under the Destructive Insects and Pests Act, 1907, with the object of enabling the Board of Agriculture to ascertain at once the exact areas at present affected.

2. That where the disease is known to exist on any farm or holding it shall be illegal for the grower to sell any Potatoes until the same shall have been examined by an inspector from the Board of Agriculture or duly qualified person; and that all Potatoes found to be diseased shall be destroyed, the grower to be compensated for the same up to half their value, such compensation to be paid from the Treasury Funds. Further, that every grower within a period of seven years who plants Potatoes in ground where the disease has previously existed shall be required, before offering the crop for sale, or allowing it to be removed, to possess a certificate from the Board of Agriculture certifying that the same is free from the disease.

3. That the Board of Agriculture be requested either to publish the scientific details of the investigations on which the following statement (published in the Board's leaflet) is based, viz., that the black scab of Potatoes is able to attack Mangold and Beet, or to withdraw this statement, and to substitute the scientific name *Chrysophlyctis endobiotica* for that of *Oedomyces leproides* (the Beetroot disease) at present used by the Board, and in the latter case to place no restrictions upon the growing of Mangold or Beet on land contaminated with the black scab disease of Potatoes.

4. That in view of certain statements that have been made, the Board of Agriculture be requested to investigate as to whether the disease is being introduced into this country by means of imported seeds.

5. That in view of the enormous importance of the health of the Potato crop to the public generally, the Board of Agriculture convene a gathering of representative Potato growers, and others interested scientifically or commercially in the matter, to consider the whole question of the best means of carrying out the necessary preventive measures.

The Board of Agriculture invite a deputation of large growers and others interested to attend at an early date, and discuss the question of the measures to be taken. The secretary to the National Fruit Growers' Federation, Royal Horticultural Hall, Vincent Square, Westminster, would be glad if interested growers would communicate with him.

Beckenham (Kent) Horticultural.

On Friday, the 27th ult., with Mr. Sherley-Price (one of the vice-presidents) in the chair, Mr. R. B. Leech, of Wood Hall Gardens, Dulwich, gave a lecture on the "Syringing and Damping-down Fruit and Plant Houses." The lecturer is of opinion that these operations are too often done indiscriminately, and to excess, and considers it detrimental to the occupants of our glass houses, and not conducive to the best results. Mr. Leech spoke some time on the "respiration" of plants, and afforded much food for thought, and specially recommended the young members to study this function from Kerner's "Natural History of Plants." At a future date the lecturer will deal with the subject from a practical standpoint. Hearty votes of thanks were accorded both lecturer and chairman. A vase of splendid spathes of *Anthurium Scherzerianum* varieties, put up by the lecturer, was awarded the society's special certificate.—T. C.

Torquay, April 2nd.

The spring show of the Torquay Gardeners' Association, always an attractive feature at this fashionable health resort, although not less interesting than on former occasions, was weak in the competing classes, the prizes being taken mostly by some half a dozen exhibitors. This deficiency was, however, more than compensated for by the strong muster of trade exhibits which made up the bulk of the exhibition. Mr. H. Greswolde-Williams (gardener, Mr. H. Graham) showed a splendid batch of Cyclamens; indeed, these were quite a feature of the show. Those of Dr. Quick (gardener, Mr. F. Perrett) and Mrs. H. Wrey (gardener, Mr. A. Pidgeon) also were extremely good. The Hon. Helen Cubitt (gardener, Mr. W. J. Pidgeon) showed the only private group, composed of palms and ferns, and Mrs. L. E. D. Tottenham (gardener, Mr. S. T. Githam) did well in the plant classes. Mr. C. W. Tayleur (gardener, Mr. H. Dolling) was first in Cinerarias, and Mrs. J. Lyon (gardener, Mr. W. Jarman) led for Cineraria stellatas. Mrs. H. Wrey and Mr. G. H. Pearce were first in their respective classes for vegetables, and Mrs. Wrey won the cup presented by Messrs. Barr for Daffodils. The Hon. Helen Cubitt secured Messrs. Sutton's prize for stellata Cinerarias. Mr. H. Dolling was first in table decorations with a novel and tasteful arrangement of lavender coloured Cineraria stellata and Asparagus plumosus, in a keen competition.

Messrs. Sutton and Sons (Reading) showed some well-grown plants of their new dwarf stellata varieties of Cinerarias, and Messrs. Barr (Thames Ditton) an extensive collection of Daffodils and hardy flowers; whilst Messrs. R. Veitch and Son (Exeter) exhibited an interesting stand of flowering shrubs, rock plants, and winter Carnations. The Devon Rosery (Torquay) showed pot Roses and other flowering plants; and Mr. W. B. Smales (Torquay) Azaleas, Magnolias, and new ferns, together with a new giant white double Daisy, *Monstreuse*. Mr. Heath (Kingskerswell) had Violets, including *Devonia*, a rosy-purple variety of his own raising, and Mr. R. W. Hodder a fine collection of *Amaryllis*; whilst Messrs. Burridge, Allward, Mayne, and Stamp each contributed bright collections of flowering and foliage plants. Mr. W. J. Godfrey (Exmouth) showed some fine zonal Pelargoniums.

The grand specimen of *Rhododendron Veitchii* shown not for competition by Mr. Eden Phillpotts was one of the most beautiful exhibits in the show, and attracted much admiration. Hyacinths, Tulips, and bulbous flowers generally were extremely poor.

The judges were Mr. J. Mayne, of Bicton, and Mr. J. Coutts, of Killerton; the secretarial duties being efficiently carried out by Mr. G. Lee. The show was opened at noon by the president, Mr. R. P. Kitson, and the attendance both afternoon and evening was extremely gratifying to the officers and committee.—F. C. S.

Redhill and Reigate (Surrey) Gardeners'.

The Redhill, Reigate and District Gardeners' Association held their fortnightly meeting at St. Matthew's Parish Rooms, Mr. W. P. Bound presiding. Five new members were enrolled. Mr. J. Harrison Dick gave a most instructive and interesting lecture on "Famous Old-time Gardeners," which was illustrated by lantern slides. Mr. Dick spoke of the lives of several famous horticulturists, and gave a description of the remarkable results they achieved with the crude utensils they had at their command. At the close of the lecture a hearty vote of thanks was accorded on the motion of Mr. Bound, seconded by Mr. Herbert.—G. P. S.

Egham (Surrey) Gardeners'.

ANNUAL MEETING.

Mr. J. Record presided at the fourth annual meeting, held on March 4, when a very favourable report and balance sheet were presented. The society numbers 160 members, and has a balance in hand of £13 8s. 7d. The lectures have been good and well attended; the library has been well patronised, 164 books having been used during the year. Votes of thanks were given to the retiring officers. A prize of 10s. had been offered for the best essay on "How to Cultivate a Kitchen Garden," for which two members competed, both were highly meritorious. Mr. Worsfold was awarded the prize. There were two exhibits of Sprouting Broccoli by cottagers, Mr. Searle being first.

SMALL FRUITS.

At the meeting on March 18, Mr. H. Peerless in the chair, Mr. H. J. Wright lectured on "Small Fruits," which included Black, Red and White Currants and Gooseberries. Diagrams were used by the lecturer, who pointed out the importance of strict attention to the small details in connection with the successful culture of these useful fruits. Hints on planting, manuring, pruning, and a select list of varieties was given. A very interesting discussion followed, and Mr. Wright was

accorded a very hearty vote of thanks. A very fine lot of *Cineraria stellata* and eighteen well flowered plants of *Primula obconica* came from W. G. Rigden, Esq. (gardener, Mr. Lingwood); well flowered *Cyclamen* and fine blooms of *Cineraria* from — Nelcke, Esq. (gardener, Mr. Baskett); Violets from C. H. Austin, Esq. (gardener, Mr. Worsfold), to whom votes of thanks were given. Mr. Butler and Mr. Livesey exhibited Leeks, the former being awarded the prize.—H. P.

Friendly Benefit Societies.

There are two benefit or sick-pay societies in the United Kingdom, whose membership consists entirely of gardeners. One has its headquarters in London and is called the United Horticultural Benefit and Provident Society. The second is at Leeds, the Professional Gardeners' Friendly Society, now only a branch society of the Grand United Order of Oddfellows. We had wished that the two gardeners' benefit societies might have amalgamated; it would not have been insuperable; but that was not to be. The following letter, which we have had lying by us, discusses some aspects of friendly benefit societies, and in particular the features of the two we have named:—

In your issue of April 21, 1904, you said, "Union is strength, why have two gardeners' benefit societies?" Similar suggestions by others have from time to time been made, and carefully considered by members of the "P. G.," but no member has yet proposed or suggested that such a step should be taken, and if they had done so there seemed no possible chance of its being accomplished, as the systems of the two societies are so different, and the United being the largest would be unlikely to adopt the system of the "P. G." It is also quite certain that the latter would not adopt that of the former.

Being unable to find out, excepting in the number of members, where "the United" was stronger or better than the "P. G.," copies of rules and balance-sheets of both were submitted to three experienced members of other societies, who were asked to give their opinions. In each case it was decidedly in favour of the "P. G." One of them, who now fills the highest position in one of the largest societies in the world, after criticising various points in the rules, concluded by saying he had no hesitation in saying that "the tables of contributions and benefits of the 'P. G.' were ahead of 'the United.'"

The sickness liabilities increase so enormously with age, that the admission of new members from 18 to 45 years of age on the same terms cannot possibly be considered equitable and just. It is quite clear that a member of the latter age brings a much greater liability than the former, and should in all fairness be charged a larger contribution; moreover, I say a man has no right to put off joining a friendly society until he is 40 or 45 years of age, and then expect to be admitted on the same terms as those who have had more forethought. The motive then becomes a purely selfish one, and should not be encouraged. The system of sharing out all the surplus from the sick fund at the end of each year makes every member a new member financially, so that "the United" are annually re-admitting an increasing number of members up to 69 years of age, on the same terms as young men of 18. This system has ended disastrously in hundreds of cases. Quite recently an old man, who is nearly destitute, told me he had paid over forty years into two of these societies, and now when he wanted the benefits there was nothing left for him. I am of opinion that the effects of increased age would have told seriously upon "The United" ere this, but for the fact that in recent years, thanks largely to the horticultural Press, there has been a large influx of young members; but can the present proportion of young members be kept up? The unfortunate thing is that young men who join a friendly society indiscriminately, often do not find out their mistake until they are too old to join another. I do not suggest that "The United," with its large deposits to draw upon, in case the contributions for the year are insufficient to meet the sickness claims, is in danger of collapsing, at any rate at present; but members are induced to join on the assumption that it is a savings' bank as well, and that there will be a substantial surplus annually placed to their deposit account; and as the contributions of the younger members are out of all proportion to the sick benefits assured, is it likely they would continue their membership, or others be induced to join, if this surplus was very considerably reduced, much less so if there was any likelihood of their deposit being drawn upon to meet the increased claims of aged members, who had not made any adequate provision themselves, but instead had piled up a substantial deposit account which would only be drawn upon to the same extent as that of a young member who only had a small account, and who at the same time would be paying more than his fair share of contributions.

The actual experience of the Manchester Unity (the largest

society) as revealed by calculations made by one of their actuaries shows that [in the members] from 25 to 34 years of age the expected sickness [per year] was ten weeks; from 35 to 44, 14½ weeks; from 45 to 54, 24 weeks; from 55 to 64, 53 weeks; and from 65 to 74, 254 weeks. From these tables it will also be seen that when contributions and sickness benefits cease at a given age, the society is relieving itself of an enormous liability. The healthy occupation of members of "The United" and the "P. G." will probably cause their sickness experience to be less than the above tables, but the increase with age is likely to be the same proportionately; but the mortality tables being more favourable, a greater proportion of the members will live to claim the sick benefits in the later years.

The following extracts from a memorandum issued by the Registry of Friendly Societies are worth consideration:—"In dealing with the benefits assured to members of friendly societies, there is an important fact to be borne in mind. Taking any number of men or women together, it is beyond all doubt or question that the rate of sickness becomes greater with age. Accordingly, members of friendly societies should, in common fairness, be charged either an increasing contribution from year to year, as they become more liable to sickness, or which in practice is found more convenient, a fixed contribution throughout life, somewhat above the amount required to meet the probable claims of the early years of membership, and sufficient in the later years with the surplus of the earlier ones, properly invested at interest, to meet the claims as they increase with age.

"Now, in the class of societies known as dividing or sharing-out societies, instead of retaining for accumulation the surplus contributions of the early years of membership, such surplus contributions are at fixed periods (generally annually) returned to the members in the form of dividends. By thus openly declining to accumulate surplus contributions, societies do away with the necessity for periodic valuations, and practically assume that the claims on account of the members' benefits will always be more than met by the contributions for the time being. The practice of the dividing societies must then of necessity be based on the assumption that there will always in the future be forthcoming new young members, whose surplus contributions may be applied to meeting the deficiency on account of the old members, and to providing a sum to be appropriated in the form of dividend among all the members. As a matter of fact, dividing societies, with the object of insuring that there will be a dividend, usually charge their members a relatively much higher contribution on entry than ordinary societies. Whatever might be said in favour of this system years ago, when trustworthy statistics from which proper contributions according to age at entry were not available, it may be stated that as such statistics are certainly now available, this reason no longer exists.

"While fully recognising the creditable manner in which many of these societies have been heretofore conducted, the attention of such societies should be called to the necessity of a much closer examination of the principles upon which their continued financial prosperity ultimately depends."

I trust I have made it clear to you that we have had some reason for declining to entertain the question of amalgamation with "The United," and have shown that we deserve more help from the horticultural Press generally than we have hitherto received, and I would now give you some particulars why, after very careful consideration, we decided to become affiliated as a neutral branch of the "G.U.O.O.F."

During forty years' experience and observation we must expect to find out some mistakes which need remedying, and weak places that should be strengthened, and where it is possible should try and extend the benefits to the members. An important advantage in a friendly society is free medical attendance, and medicine during sickness, or a greater sum than the sick allowance is often absorbed in paying for such. Owing to our members living so widely apart we were unable, as an independent society, to cope with this difficulty, and some likely candidates declined to join us, and some members left (or threatened to do so) unless we could provide a doctor. By affiliation this difficulty has to a great extent been overcome, and branches in other parts have already been helpful to us in other ways, such as attention to members in distress, inquiring into any cases about which there may be any doubt, and in other ways. There appears to be some doubts as to what this affiliation means. It makes no difference whatever in our principal rules and regulations, as membership is still strictly confined to those engaged in some branch of horticulture. The Order of Oddfellows has nothing whatever to do with our funds. These, as before, are entirely in our own keeping, and invested in the names of our trustees. I have not seen a copy of the new rules of "The United" since they were registered, so have had to base some of my remarks on the old ones, and an unregistered copy of the new ones; some of them may have been altered. I enclose you a copy of our rules.—GEORGE CARVER, Sec., Professional Gardeners' Lodge, Chapel Allerton, Leeds.

The Tulip.

After the usual monthly dinner of the Horticultural Club, held on Tuesday, the 31st ult., under the chairmanship of Mr. W. A. Bilney, the Rev. Joseph Jacob gave an extremely interesting lecture on the Tulip and its history. The cult, as he pointed out, was one of considerable antiquity, since even as far back as 1554 their beauty was appreciated and recorded by noted botanists of the time, and both Clusius and Gerarde refer to them in 1573 and 1597. By 1634, indeed, the Tulip had attracted so much attention and had produced so many varieties in evidence of its peculiar sportive character, that "the Tulip mania" commenced, new forms fetching fabulous prices far and away exceeding even those realised by the rarest orchids of to-day, one bulb of an unnamed form actually being sold for £5,000. Speculation, indeed, reached the verge of insanity, and it is recorded that two bulbs only of a rarity existing, the owner of one paid a small fortune for the other, which he at once destroyed to render the remaining one "unique." Madness could hardly go farther, and it is therefore not a matter of surprise that a reaction followed, so that in 1637 Tulip fanciers of the speculating kind tried to realise, with the result that a "slump" followed. The States General of Holland stepped in, and instituted regulations, and by 1639 common sense had re-asserted itself. Eventually in 1730-40 popular taste turned to American plants, and Tulip cultivation fell into the background, but the varieties by this time ran into thousands.

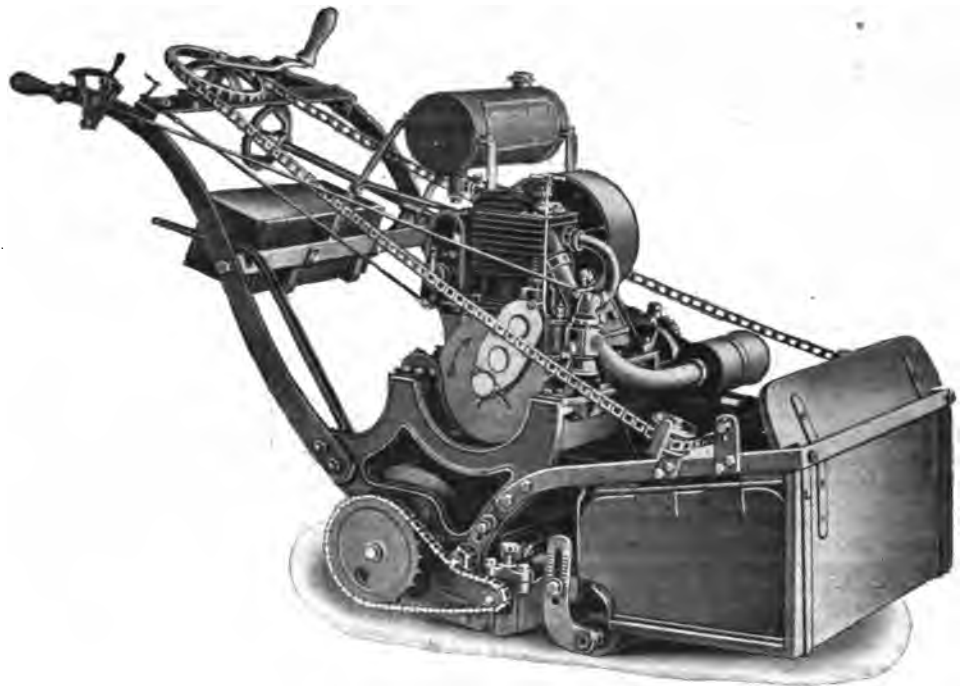
The first double Tulip, *T. lutea centifolia*, is recorded in 1665; and Parrot Tulips came to the fore in 1690. The origin of these appears to be somewhat mysterious, since they agree in form with no known species. France appears to be the locality where they are first recorded. The curious fact was stated by the lecturer that in a catalogue issued at the end of the eighteenth century, the quoted varieties of *Ranunculus* far exceeded those of the Tulip, two bulbs of each of 500 kinds being offered for £30.

In 1820 to 1840 there was waged the war between the Florists' Tulip connoisseurs of the North and South, the former considering the character of the marking to be the first essential, and the latter the purity of the flower. The precise shape of the flower was also a vexed question, Glenny fixing it as a cup embracing one-third of a sphere; Groom, another authority, at one half; and Slater, a third expert, at nine-sixteenths. In 1849 the National Tulip Society was founded, and Tulip cultivation was greatly in favour. In tracing the history of the flower up to the present date, the lecturer interpolated with the data above cited, a number of very interesting facts relating to the introduction of new varieties and species. There is no doubt that we owe the majority to the East, but it appears to be somewhat an open question how far the native Tulips of Italy, France, and elsewhere, may not have played their part, while curiously enough the wonderfully distinct section of the May-flowering Tulips appears to be due to survivals in old cottage gardens from an unrecorded source.

The subsequent discussion was rendered the more interesting by the presence of Mr. Krelage, of Haarlem, and Messrs. Barr, Ware, Wallace, and Jenkins, all experts in this particular line. Mr. Druery mentioned a colony of *T. undulatifolia*, a fine scarlet form, which he met with in the vicinity of Smyrna, the bulbs being massed in hard, bare, stony ground, the heat of which at midday was so great that the hand could hardly bear it, a point indicating the need of bright sunshine for perfecting the bulbs. Some interesting remarks were made concerning that unique peculiarity of the Tulip, namely the "breaking," as it is called, of the flower into coloured forms, which are preceded in the seedling, for, it may be, six or seven years, by altogether different and uniform tints, so that the breeder's patience is often sorely taxed before he can know what is the result of his sowing. The address was so full of the results of research that it is to be hoped it may eventually take such form as to permit of its publication in the R.H.S. Journal. A hearty vote of thanks was accorded to the lecturer, and also to Mr. Krelage and the other experts who had contributed to the subsequent discussion.—C. T. D.

Motor Mowers.

Smooth green sward is a chief characteristic feature of English pleasure gardens. In the pre-mechanical days, when scythes were the only instruments for the mowing of lawns, the labour and time involved in their up-keep was tremendous, and would stagger a good many gardeners of the present day. Our elderly readers will remember their early morning tasks in this direction, for though both horse and manual propelled lawn mowers were in use about the time of the accession of the late Queen Victoria, the scythe still remained the favourite mowing instrument even then. But even horse-mowers may now have had their days numbered. Then years ago hardly anyone dare believe that petrol-driven mowers would be found buzzing about to and fro and circling around on garden lawns. But the revolution has begun. In 1902 Messrs. Ransomes, Sims, and Jefferies, Ltd., of Ipswich, became the pioneers of the petrol-motor lawn mower, since which date they have sent out upwards of 200 machines, which are giving general satisfaction throughout the country. Messrs. Ransomes' motor lawn mowers are made in three sizes: A 42in machine intended for use on large level surfaces such as cricket grounds, &c.; a 36in machine for undulating lawns, parks, and also for golf grounds; and a 24in machine (see illustration) adapted for small grounds, say of one to three acres. All these machines are fitted with high tension magnetos. The lawn mower can be stopped inde-



Ransome's 24in. Motor Lawn Mower.

pendently of the motor, and the large size can be fitted with weights so as to act as a heavy roller when not required for cutting. In the manufacture of these machines Messrs. Ransomes have brought to bear all the experience they have gained as the oldest manufacturers of ordinary lawn mowers in the country, and their machines have long past the experimental stage, and can be thoroughly relied upon for efficient and constant work. Though the motor may at times go slightly out of order, the users of them very speedily get to know all about them, so that with very little practice they can handle them entirely satisfactorily.

Japanese Horticulture.

The "Journal of the Royal Horticultural Society" for December, 1906, contains several essays on the horticulture and floriculture of Japan. From one by Mr. N. Hayashi we extract the following:—Until fifty years ago Japan was compelled to look to China as her teacher, and Chinese civilisation as her model. In such circumstances, horticulture also was developed on Chinese principles and bound by Chinese conventional rules. The progress of horticulture, however, depended on the tranquillity of the country; and, indeed, until Shogun Tokugawa, the great feudal ruler, had brought about universal peace by the construction of a powerful government in A.D. 1695, the

art of horticulture did not make any marked development. From this time, down to the end of the eighteenth century, the warriors as well as commoners began to devote themselves to peaceful arts and naturally to turn their eyes to gardening. The result was that we, even, at the present time, regard the Tokugawa dynasty as the golden age of Japanese horticulture. But there came another civil war, or, more correctly speaking, a revolution, about forty years ago. The object of the revolutionists, who were not revolutionists in a bad sense, but reformers, was to effect a complete change in the old customs which appeared to them to be impediments in the path of obtaining Western civilisation. Thus the beautiful gardens attached to the town houses of feudal lords and Shogun's knights in Yedo (now Tokyo), the then seat of the defeated Shogun, were remorselessly destroyed; trees and bushes were cut down and converted into fuel for the people's furnace, and ornamental stones were dug up to pave the streets. In these circumstances it is no great wonder that the art of horticulture was for a while entirely suppressed.

The time has not yet come, however, for the nation's undisturbed devotion to such a peaceful art to the extent that we desire. The civil war, fortunately enough, ended in a comparatively short time, and perfect peace was restored. But by that time Japan had started a new life, and the whole of the people, fully realising the vital necessity, were bent on making their country the equal in civilisation, and in powers of defence and offence, of any European nation: education, law-making, military organisation, and hundreds of other necessary alterations due to the sudden change to Western civilisation urgently required attention. Consequently, though the cultivation of utilitarian fruits and vegetables has been more or less encouraged by the Government, the cultivation of garden plants and flowers has not much occupied the people's attention. Moreover, only ten years after the last Chino-Japanese war, we have been again called upon to fight against a certain Power for our national existence as well as for securing permanent peace in the Far East. And we have not, for this reason (which, I trust, will evoke your warm sympathy), been able to do as much as we should wish for the cultivation of this peaceful art; but I sincerely hope the conclusion of this terrible war will bring the much-desired peace in the East, in which case our horticulture will not be slow in benefiting by it. To avoid misunderstanding on the part of my audience, I must mention the locality in which I have been engaged in this art, as Japan, which stretches over many degrees of latitude, greatly varies in its climate. In the course of my lecture, if I do not particularly mention the name of the district, it will be understood to be Tokyo where I was working.

Horticulture in Japan is not yet treated as a different subject from agriculture, and it forms a branch of that science. The most advanced course of study is provided at the Imperial University of Tokyo, and below this there are three schools—one being under the direct supervision of the above University, and the others are under the Sapporo and Iwate prefecture in the northern part of Japan. I may also add that to complete the University education takes nineteen years, starting from the elementary school at the age of six. The term of education at the second-grade school is sixteen years (including the boys' school). Besides the above-mentioned there are about thirty agricultural schools throughout the country chiefly of a practical nature, and in those the term of study is eleven or twelve years, according to the different districts. Large experimental grounds for agricultural purposes, including horticulture, are provided in six districts under the direct management of the Government, the one at Tokyo being the largest. But I am glad to say that a new experimental ground was opened the year before last in the Shizuoka prefecture. Besides these, many districts have their own grounds on a small scale, supported by the local rates. As regards private undertakings, with a view to promote an interest in agriculture, there are several organised bodies, one of which is the "Agricultural Society of Japan," with its head office at Tokyo. These societies occasionally hold shows of vegetables and fruit. In addition to the numerous agricultural societies throughout the country, there is one organised body, called "Nihon Engai Kai" (Japan Horticultural Society), which is solely interested in horticulture. Also there are various societies of different character, chiefly consisting of dealers in certain flowers and plants, which are generally concerned with one species of plant or flower. The kinds of plants and flowers which constitute the objects of these societies are as follows:—Kiku (*Chrysanthemum sinense*); Asagao (*Pharbitis hederacea*); Ran (*Cymbidium ensifolium*); Omoto (*Rhodea japonica*); Sakurao (*Primula farinosa*); Bara (*Rosa indica*).

Besides these, there are some societies similar to the above in their character, respectively called the "Fruit Society," the "Dwarf Tree Society," and "Ikebana Koi." In the last named, "Ikebana" is a term applied to a system by which flowers and plants are to be treated and arranged in the flower vases. The "Ikebana" is one of the valuable remnants of old Japan, and is regarded as a branch of æsthetical training especially for women. Flowers and plants for decorative purposes in

Japanese rooms must almost necessarily be those which are treated and arranged in accordance with the system of "Ikebana." There are several schools concerned in carrying out these methods and principles. These different schools often show in competition, which excites no small interest among ladies and other interested persons. It is becoming the fashion now even in a banquet, otherwise entirely in Western style, to have the tables decorated with flowers and plants according to the rules of "Ikebana." Now, upon entering the technical part of my lecture, I will begin as regards vegetables. As you doubtless already know, the "staff of life" in Japan is rice, and consequently our cooking of the vegetables which constitute the sub-food differs greatly from yours. Japan has cultivated vegetables for a very long time, and has produced a great many garden varieties of them. In addition to this, owing to our now eating more animal food than we did before, many new vegetables of foreign origin have been introduced.

Mr. Hayashi then proceeds to name and discuss the more common vegetables and varieties of fruit. He mentions that the Onion is a native of Japan, but was imported again for cultivation from England, France, and America after their national Reformation. Jerusalem Artichokes, Beet, Carrots, Turnips, Radish, and all our best vegetables are grown; also some that we never think of cooking, as the bulbs of *Lilium tigrinum*. The young shoots of a bamboo (*Phyllostachys mitis*) are also considered a great delicacy. Horse-tails (*Equisetum*) are grown for their flowers, and the leaves and stalks of *Chrysanthemum coronarium* are eaten raw or half boiled. The selection of fruits that can be grown out of doors is greater or quite as great as that of England, including Pears, Apples, and Plums (Japanese forms); with Oranges, Lemons, Chestnuts, Grapes, Bananas, and Cocoanuts.

Young Gardeners' Domain.

* * The prize is awarded to Mr. W. Richardson, Stoke Park Gardens, Guildford.

The Herbaceous Border.

More progress has been made of late years in the herbaceous border than in any other department of the garden. Some gardens are renowned for their artistic bedding, modern glass departments, or vegetable production; but broadly speaking, herbaceous plants are receiving increased encouragement, as will be readily acknowledged. The variety of choice hardy plants now in commerce renders the selection quite an easy matter to suit any soil and situation, providing they are planted with skill and a careful hand. Knowledge of what one is planting is absolutely essential, in order to get a most desirable arrangement. For position, a warm sheltered place should be chosen, where the sun shines all day if possible. An ideal spot would be the south side of a bank of shrubs or high wall that could be covered with permanent climbers. Under these conditions the plants would receive shelter from the north. The preparation of the border should be as thorough as that of the kitchen garden. Planting choice subjects without this preparation points to failure. On the other hand, success may be expected by the liberal applications of manure when trenching. Where the soil is wet and heavy draining may be done with advantage.

It has been suggested by some that a border should be so made that it will not require renovating for several years, but this surely is misleading, especially to the inexperienced. Careful observation teaches me that quite a number of these hardy subjects are benefited by lifting, dividing, and replanting annually (failing this, every alternate year). When doing so, the outside crowns in many instances should be chosen, discarding the exhausted portions. Whether the plants are growing in the herbaceous border proper, in beds, or amongst shrubs, the same renovation should be adopted to keep them in a flourishing condition. Although advocating this general renewal, it must not be forgotten that there are subjects impatient of root disturbance, and must consequently be treated accordingly if one would reap success. Staking is one of the most important operations in this department, which demands early attention. Peaboughs furnish material very useful for this purpose, but good specimens are honestly worth a cane placed to each shoot; in fact, in the case of heavy-headed subjects it is essential. Every article in the border should be correctly named, without which, to my mind, it is like bread without butter. Naming of the various plants is quite a study in itself. Watering must also have its proper attention, as absence of it will be conspicuous to the practised eye.

In conclusion, I would earnestly appeal to every young journeyman (who is not doing so) to take a thorough interest in and study the hardy herbaceous plant border, as it is a department we shall be expected to be well acquainted with.—W. R., Guildford.

An Uncommon Enemy.

Our early vinery has recently been attacked by the Vine weevil (*Otiorhynchus sulcatus*). As this is not a very frequent visitor, a few words on the subject may be of interest. From July till the following spring the larva is to be found in the soil—a fat, curved, creamy coloured grub. When the Vines start into growth it develops into a beetle-like insect, nearly three-eighths of an inch long. It is black, with the wing cases thinly covered with greyish-green scales. The weevil feeds only at night, and its work resembles that of a caterpillar. If not stopped in time the damage will spread, not only over the leaves, but to the flowers and berries as well. As a remedy it has been suggested that a white sheet might be hung under the Vines during the day, and the weevils be shaken into it at night, but I have found them very loath to "let go." They will cling to the leaves even after they have been actually touched, and it is possible they feign death to escape it. In modern structures that are vineries only, and not plant houses as well, they can be easily dealt with by stopping up all crevices, leaving only a few boards for them to take shelter under, where they can be caught. This is, of course, impossible where forcing or bedding plants have to be grown in the vinery. Under these circumstances I have found the only way to exterminate them is to catch them at night by the aid of a lamp. The weevil cannot be considered a dangerous pest unless it is allowed to get the upper hand.

With the more common pests, viz., red spider, thrips, and mealy bug, we are all more or less familiar, but a good deal of labour in vain is bestowed upon them through mistaken ideas. Methyland spirit, for instance, is generally believed to be fatal to mealy bug, but unless the spirit is of the very best quality the strongest of them will soon revive after its application. Paraffin is far more effective if care is taken to keep it off the foliage. Strawberries are often blamed for introducing red spider into a vinery. If the plants are kept well syringed the previous summer and all dead leaves are carefully removed when bringing them in, there need be no fear of the pest gaining a footing that way. As regards mildew, a chill damp atmosphere, or indiscreet ventilation, are not the only causes of its appearance. It is sometimes introduced at the roots with over-feeding, or feeding with manure too hot, such as fish guano. There is no real remedy for this, and it must be allowed to work itself out. In the former cases it can, in its first stages, be stopped by sponging the leaves with soft soap, a little sulphur being burnt afterwards in the house in an ordinary fumigating lamp. A keen eye is always a necessity.—R. M. Lewis.

Nature's Answer to Pruning.

When the time comes for pruning various subjects, many pause and think what treatment is most beneficial. Take a careful examination, and very often Nature gives you her answer. Invariably the plant under discussion, such as the Kerries, for instance, tells one most emphatically where and what needs pruning. One sees last spring's flowered stems all twiggy and decidedly unsightly, together with long, slender, bright green new growths. The answer is obvious. Those twiggy stems were as those the season before, naturally then their use is over, so the inevitable course is to cut back to a couple of base buds. Leave a *Jasminum nudiflorum* two or three years, and dirty brown stems and very short flowering sprays are available. Here, again, the reply is forcible, and judicious thinning and cutting back after flowering is asked for. With *Caryopteris mastacantha*, a different query comes to one. "It flowers on every shoot, so that it seems callous to cut it at all. Still, if left, this species becomes a very leggy and by no means a becoming shrub. It should be pruned in early spring fairly hard; then long, straight, upright growths and large inflorescences result."

Leycesteria formosa, where it thrives, speaks also to the pruner. Should the previous year's growth be left in its entirety, numerous side shoots are thrown up and flower. So also do those strong robust stems that come straight from the base, and have more massive flowers; they last longer, and never have a crowded appearance. Therefore, let the last season's stem be diminished by one half, and one will have strong graceful branches that will give their colour right into mid-winter. Another subject for similar treatment is *Spiraea callosa*, with huge plumes of rose and white, that dwarf the non-pruned, and speak volumes on Nature's behalf. *S. Lindleyana* is in the same category, also *S. sorbifolia*. As to Roses, leave them and they become so congested that the flowers are worthless. Look at the Crimson Rambler. Was ever answer more pointed? Those great strong growths arising from the base, left unpruned, give the finest trusses in the forthcoming season. *Romneya Coulteri* (so much under discussion) if left unpruned quickly deteriorates and becomes a hideous jungle. Pruned to the last three or four eyes, massive young growths are sent up from the base, and give far finer flowers than any otherwise. The *Ceanothus* is another family, which, if left undis-

turbed, gives more feeble florets every ensuing year. Where are those splendid trusses that we once saw? Then they had been pruned, and were furnished; now they look after themselves, and refuse. The plant answers one in its own plaintive method of protest.—DONALD WATSON.

Primula sinensis.

Seeds of this showy greenhouse plant should be sown during February or March for flowering from November onward, and again during May or June for succession in spring. Sow in pans containing a compost of equal parts loam and leaf soil, passed through a fine sieve, with a good dash of sharp sand. Press the compost moderately firm and level, then place the pan in water up to the level of the soil till thoroughly moistened through, and allow to drain for an hour or two before sowing the seed, which, being fine, should be done with care. Sow thinly and evenly, and lightly cover with sand. Plunge in a temperature of 60deg to 65deg, and place a piece of glass over the pan, which must be kept shaded from bright sunshine. As soon as germination takes place tilt the glass for a day or two, then leave it off altogether, and place the seed pan near the glass. When the first leaf appears place them in a temperature 5deg less, and about a week after prick off into pans or boxes containing a compost of three parts loam, one part leaf soil, and half part spent Mushroom bed. From start to finish, watering should be done with care, always aiming at keeping the soil uniformly moist. Before the plants get at all crowded they should be potted singly into 72's, or small 60's, using similar compost as for pricking off. Give air on all favourable occasions, and lightly shade from the bright sun. Before getting pot-bound, shift the plants into large 60's or 48's, according to the size they were first potted into, using the compost in a rougher state, and pot moderately firm. Keep the collar of the plant well down to the top of the soil. About the first week in May the plants may be placed in a cold frame on an ash bottom, airing on all favourable occasions, and lightly shade from hot sun; spray the plants over morning and afternoon in bright weather, and close the frame with a little sun heat. The final shift should be given them by the end of July, which will be 32's or 24's, according to the strength of the plants, placing a few crushed bones over the drainage, and add a 48-potful of soot to three bushels of compost. When these pots are filled with roots feed with liquid manure and soot water alternately about once a week, and an occasional sprinkling of an approved fertiliser. During September the lights may be left off at night, when the dews will be found beneficial to the plants. Pick off flower spikes till required to bloom, and house before any danger of frost in a light airy structure having a temperature of 50deg to 55deg, avoiding a damp atmosphere in dull weather.—E. L.

Cultivation of the Florists' Cyclamen.

Few plants are better adapted to pot culture or give better returns for winter and spring flowering than do the varieties of *Cyclamen persicum*. They require a moderate amount of care, and they like cool treatment when they get established. First of all we come to the sowing of the seed, and the best time to sow is in autumn, as the seedlings get a better start then. Place the seeds thinly over the surface of the soil, then press slightly in and cover over. A temperature of 55deg to 60deg will be sufficient to ensure germination, which, however, is sometimes slow. When the seedlings appear, the pots or pans must be raised near the glass in order to prevent them from becoming drawn, and as soon as they are large enough the seedlings should be pricked off in 2½ in or 3 in pots. Keep the plants close to the glass on a shelf until the spring. They may then be transferred into a cooler house to harden them off before placing them outside in a frame. A few weeks in the frame and they will be ready to be shifted into 4 in pots. Give plenty of air on all favourable occasions, and syringe in the afternoon all through the growing season. By July the pots should be well filled with roots. They should then be potted into their flowering pots, which should be 5 in or 6 in in diameter. Employ a compost of loam, leaf soil, and a little lime rubble. Only half the corm should be covered with soil, leaving the top clear, where the leaves and flowers appear. Continue to syringe them, and keep them in a light airy place, shading them always in bright sunshine. In the autumn they should be taken inside. I have seen them do well in a cool span-roof on a shelf near the glass. The flowers should never be cut off the plants, but rather be pulled out to prevent the remaining stem from decaying. The plants can be grown on a second year by resting them a little, and then pot on, treating them similarly to the young plants. But the young plants are preferable, as the second year the flowers are earlier and somewhat smaller, and sometimes deformed. The only insect pests the plant is subject to are greenfly and thrips, which can be kept in check by the syringe and a slight fumigation. Attention given to these small details will give ample reward and a wealth of flowers.—PERCY EDEN, Heslington Hall Gardens, near York.



Fruit Culture Under Glass.

EARLIEST PEACHES.—The trees in the early house will now be swelling their fruits freely, and will have passed through the difficult period. There should now be no fear of dropping, and the final thinning should take place. With very early kinds, such as Early Alexander and Amsden-June, it is well to leave more fruit at the start, but these may now be regulated, and where at all shaded with foliage the latter may be thinned, and the fruit exposed as much as possible to get well coloured. Much can be done during the next two months by regular stopping to build up wood for next season's fruiting. It is much better to check gross growth, and by so doing get good fruiting wood. Trees that are bearing poor crops should get less food, and here more attention will be required to get a well balanced growth. Avoid high night temperatures: 60deg will suffice, with a free rise by day. Such Peaches as those named above, and the Early Alfred, Condor, and Duchess of York will stand more heat than many others. To get the best results it is advisable to do as much of the forcing as possible during daylight. As regards Nectarines, the introduction of Cardinal a few years ago was a great gain, as this is a grand variety for earliest supplies, and its size and colour add to its value.

LATER TREES.—These trees have now set their flowers, and more warmth may be given, but do not hurry the trees if time is no object, as much better results follow slow forcing. Disbudding must now be done almost daily, as by doing this work gradually there is less check on the trees. When the trees have set freely, a considerable number of misplaced fruits may be removed. It is usual to leave all the fruits on the upper side of the trellis, but there is a little advantage in having some on the under side, as these are later, and give a succession. Just before the ripening season it is an easy matter to remove some leaves to get the fruits coloured. In thinning the fruits later on, it is soon seen which are likely to swell freely, and any at all doubtful should be removed. With mid-season Peaches and Nectarines it is a bad plan to crop too freely, as the trees soon fail under such conditions. It is a safe plan to leave, say, two to the square foot of trellis at the final thinning. Overcrowding of shoots should be avoided, and shoots not required for extension should be stopped at the fourth leaf. This assists in swelling the fruit. Healthy trees will need much water, and liquid manure is excellent; also fresh soot spread on the border and raked in.

LATEST HOUSES.—Trees in flower will require daily attention to secure a good set of fruit; and this is best done at mid-day, but bees are most valuable. When a hive is near at hand use it; failing these the work must be done by the brush. Care should be taken to keep the roots moist, just before the trees commence to blossom; and in houses or cases where the fruits are required as late as possible these should be kept open day and night in mild weather, but ventilate carefully on cold days. —G. W., Brentford.

The Flower Garden.

GLADIOLI.—During the next six or seven weeks the corms of the large-flowering hybrids may be planted at intervals to provide a succession of flowers. We prefer to place them on soil in shallow boxes, and allow the corms to make a few roots previous to planting them in their flowering quarters. Gladioli grow best in sandy loam, in heavy soil a little coarse sand should be placed round the corms at planting time. They may be either planted in rows 9in to 1ft apart, according to the size of the corms, or in groups, and clumps of three, four, or more together. Plant to a depth of 3in.

IVY AND BOX.—The present is a suitable time for clipping or cutting the Ivy on buildings and fences. Shears are often employed for this work. A rip-hook or sickle with a long handle will be found convenient when working on a ladder. Clip Box edging, and do any lifting and replanting necessary. St. John's Wort (*Hypericum*) should also be cut down before the young growths are any length, or they will be damaged.

HERBACEOUS BORDER AND ROCKERY.—New plants which have come to hand from various sources during the winter, and have been kept in a cold frame for safety, may now be planted. Overhaul the labels, and replace any which are indistinct. Hoe the ground between the clumps which show above the soil. Plant out Japanese Lilliums started into growth in pots.

HARDY FERNS.—These plants do not receive the attention they deserve in many gardens. Our native species are ornamental, the many beautiful varieties, which in some instances number a hundred or more, being much more so. No more suitable time than early in April can be found for making new, or renovating and cleaning existing hardy ferneries. Cut off the old fronds, lift, and divide any of the plants where the crowns are becoming crowded, and top-dress with leaf soil.

NYMPHÆAS AND OTHER HARDY AQUATICS.—It is advisable to clean out artificial tanks and ponds in which these plants are cultivated each spring. Some may need repotting, while others only require a top-dressing of fibrous loam and cow manure. In large natural ponds and lakes there is usually sufficient rich mud to meet the requirements of the plants when once established.

BEDDING PLANTS.—Considerable work has still to be accomplished before all the plants are ready for planting out. The cold frames must now be filled up with some of the forwardest Geraniums, Marguerites, Centaureas, Fuchsias, &c., to make room for other plants in the warm frames and houses. Push on the propagating of *Alternanthera*, *Lobelia*, *Alyssum* (*Koeniga*) *procumbens*, &c. Sow seeds of dark-leaved Beet; we find a good selection of the old Dell's Crimson variety one of the best. —A. O., Kew, Surrey.

The Kitchen Garden.

MAIN CROP POTATOES.—These should now be planted as rapidly as possible. There is every prospect of the soil working into an excellent condition. Of course, the soil was thoroughly broken up early in the winter, and in such cases the frost and wind has penetrated deeply, and with sun and wind very little further work will be necessary. In addition to any farmyard manure applied, one cwt. of superphosphate and one of With's carbon would greatly assist. The system of opening the furrows with the plough and covering the sets with the hand hoe is a good one—much better than covering with the plough, as the soil can be moved deeper and affords a better opportunity for clearing and earthing later on.

BROCCOLI AND KALES.—These should now be sown for general purposes, as also a little Savoy for producing early heads. There are so many excellent kinds of Broccoli in cultivation that it is difficult to select the best for the various seasons. Easter-tide and Vanguard have proved two of the hardiest late kinds. The old cottagers' Kales are now supplying a bountiful crop of "greens," and not one plant has failed.

ASPARAGUS.—If new beds are to be planted no time should be lost in making the necessary preparations. Few go to the trouble and expense of preparing beds for this vegetable. Neither is it necessary; indeed, excellent heads can be produced by planting on well-trenched and well-drained soil, made rich, and otherwise attended to. The seed should be sown some time in April, and 15in should be allowed between the rows. The beds sown last year should now be thinned, and the plants may be used for making other beds, or be planted in well-prepared soil for forcing, for which purpose they will be found most useful.

SEAKALE.—New plantations can also be made. Cuttings are best for this purpose. If these were prepared some time since they will now be in good condition for planting. Three cuttings should form one clump, and these should be arranged so that the pot can be conveniently placed over them if intended for forcing out in the plantation; and each clump should be 3ft apart. If the roots are to be lifted, then plant in rows 15in apart, and 10in from plant to plant. Any further cuttings from the open beds may be now brought on by simply placing the pots over the crowns and covering these with fine ashes to keep the air out. Treated thus, the heads will blanch perfectly.

PEAS.—More of the main crop kinds may be sown. The soil cannot be too thoroughly prepared for Peas: deep, rich, and warm soil is what Peas like, and no crop repays better for attention. On light soil it may be necessary to plant in trenches, for we often get a spell of very hot weather at the end of June and beginning of July, which necessitates watering on light soils. —A. T., Cirencester.

Trade Catalogues Received.

Clibrans, Altrincham, Cheshire.—Indoor Plants.

François Gerbeaux, 21, Rue de Cronstadt, Nancy, France.—Hardy Plant Novelties.

Hobbies, Ltd., Norfolk Nurseries, Dereham.—Seeds and Plants.

B. Latour-Mariac, Temple-sur-Lot, Lot-et-Garonne, France.—Nymphæas and Aquatics.

Hugh Low and Co., Bush Hill Park, Enfield.—Carnations.

James Stredwick and Son, Silverhill Park, St. Leonards-on-Sea.—Dahlias.



All Correspondence relating to editorial matters should be directed to "THE EDITOR," 12, MITRE COURT CHAMBERS, FLEET STREET, LONDON, E.C. Persons sending manuscript or photographs, when not specially requested by the editor, and making no demand for remuneration, are presumed to solicit publication without payment. In order that no misunderstanding may arise, and in order to secure the return of their contributions, contributors should state the fact that they expect remuneration, and in all cases, even when contributing voluntarily, correspondents should enclose a stamped envelope if they expect their enclosure to be returned.

LOGANBERRIES (E. G. H.).—See reply under "Fruit Notes."

DISEASE-RESISTING POTATOES (J. A.).—Your communication cannot be inserted, as it is not accompanied with your name and address; nor do you state where the Potatoes were grown.

FERN BOOK (S. C.).—Schneider's "The Book of Choice Ferns" is published by Mr. L. Upcott Gill, Bazaar Buildings, London, price three guineas, carriage paid (in Great Britain) £3 5s. Messrs. Charles Scribner's Sons, New York, appear to be the American agents. A cheaper work on ferns, "Choice Ferns for Amateurs," price 3s. 6d. net, by Schneider, is also published by Upcott Gill.

PLANTING GLADIOLI (York).—Certainly Gladioli may be grown as "far north" as where you reside, and are, in fact, splendidly grown a great deal further north—in Scotland. They are grown as well in the north as the south, if not better. The time for planting should be governed by the weather and the consideration of the soil, not by the almanac. We have planted in February in light soil in a free dry state, and in April in strong land with equal satisfaction. Any time from the middle of March to the middle of April is suitable, always taking advantage of favourable weather when the land is dry on the surface.

CANNAS AND HEDYCHIUMS (Sub.).—The plants require practically the same treatment in pots—that is, substantial turfy loam with an admixture of wood ashes and crushed bones; a light position in a warm greenhouse having a genial atmosphere; adequate root moisture, the supplies to be increased with increasing growth, affording clear liquid manure when the pots are filled with roots, when it is not easy to give too much water; cleanliness of the foliage by occasional syringes, reducing the water supply in the autumn, and keeping the soil dry in the winter. Plants in small pots should be transferred to larger before the roots are closely matted. Cannas flower well in from 7in to 9in pots; Hedychiams as a rule requiring a little more rooting space. The soil must be firm.

TOMATO PLANT DISEASED (W. W.).—The plant, very weak in the stem, was dried and shrivelled when received, therefore somewhat difficult to diagnose, but it is affected by the malady known as "sleeping" disease, and this is caused by the fungus named *Fusarium lycopersici*. It attacks the stem, usually at the radicle, grows upwards in the root stem, and at the surface of the soil usually breaks through the bark and produces the form of fruit known as *Diplocladium*, this being seen as a very delicate whitish mould. The mycelium advances in the stem in the vascular bundles, chokes them and prevents the ascent of the nutrient matter, so that the plant sickens and ceases to grow, young plants very often collapsing through the destruction of the stems just above the soil or at the collar. There is nothing to be seen, only if the stem be cut through there is found a brown stain in the tissues, or the stem may be shrunken and dried up. Unfortunately there is no cure for this disease, and though treatment with kainit in advance of using the soil for seed sowing or potting off and shifting on, has some deterrent or preventive effect, which can only be the case in that of infection through mycelium from resting spores in the soil, it has very little in respect of avoiding the disease. This possibly goes over with the seed, that saved from diseased plants, or even a diseased ancestry, being more prone to be affected as progeny than this saved from plants not known to having been affected by the malady. There is no cure. All diseased plants should be removed as soon as noticed and burned. The disease in recent years has been very destructive; indeed, it has been so prevalent that many growers have lost one-third to two-thirds of their plants when coming into profit.

COTTAGE GARDEN DICTIONARY (Fisher, Son, and Sibray, Ltd.).—We have no such work, and do not know where it can be obtained.

CUTTING DOWN HOLLY HEDGE (E. F.).—The hedge may be cut down now, and when fresh buds commence pushing saturating the ground with clear water, then following with liquid manure, would greatly tend to promote free healthy growth.

RHUBARB FROM SEED (G. A.).—Plants can be raised from seed quite easily by sowing in the open ground during fine weather in April. It is a good plan to sow in drills a foot apart, placing a few seeds at intervals of a foot, then when the plants appear thin them out as may be needed, allowing one to remain. These plants grow to a good size the first year, and an idea can be formed as to which are likely to be the best, there being usually considerable variation, and the worst can be removed. The others can either remain for affording produce the following year, or be taken up and planted at wider intervals for forming a permanent bed.

NAMES OF PLANTS.—Correspondents whose queries are unanswered in the present issue are respectfully requested to consult the following number. (E. L.).—1, *Brunfelsia eximia*; 2, *Coronilla* sp.; 3, *Cytisus fragrans*; 4, *Manetta bicolor*; 5, *Polypodium* sp.; 6, *Epiphyllum truncatum*. (H. D.).—*Iris cristata* (syn. *I. japonica*). (J. P.).—*Begonia corallina*. (Ferns).—Several of your fronds we could not identify, they being immature and sporeless. No. 5, *Nephrolepis exaltata*; 6, *Aspidium falcatum*; 7, *Davallia solida*; 8, *Pteris serrulata cristata*; 9, *Pteris serrulata*; 10, *Lomaria ciliata*; 12, *Davallia bullata*; 13 and 14, *Polypodium* (or *Phlebodium*) *aureum*.



Spring Management.

April is one of the most important months in an apiary, and should, therefore, be one of the busiest, as upon the careful management of colonies depends in a very great measure the probability of a successful harvest in the autumn. In apiculture, as in other pursuits, if a good return is to be expected there must be a season of preparation, and this season is upon us. It must not, however, be inferred from this that good management alone will ensure full supers the following summer, as the honey yield is dependent upon other influences which are not under our control. The main essential, and the first and last aim of the bee-keeper should be the production of enormous populations in all hives when the honey flow commences, seeing that there may be plenty of labourers to collect and store it. Does the fisherman wait until the shoals of fish are seen before he makes preparations for their capture, no! But thousands of bee-keepers do not dream of preparing for the honey season until it has arrived, and while they are making ready the opportunity passes away and the honey is lost.

Some bee-keepers talk a lot of ridiculous nonsense about letting bees alone, arguing that they naturally require no interference, and will do well of themselves; but if a profitable harvest is the desideratum, they are not in a natural condition, and the argument will not hold water. Bees in their natural condition store honey and pollen in the proportions necessary for their own existence, and if left alone would be able to fulfil the purpose of their existence, but the apiarist deprives them of a portion of their honey in the autumn, and this destroys the equilibrium of the hive. But for this, in the early spring they would commence their breeding soon enough for the purpose of existence, and would consume their store of pollen, but owing to their honey having been stolen they dare not begin increasing in numbers until the opening flowers affords a prospect of a continued supply of fresh honey, and thus the increase of population is too late. Those bee-keepers who keep them in skeps work with this object in view. They usually keep their best swarms through the winter, which, being in a natural state, and not having their honey taken from them the previous autumn, always do well in the following spring. They swarm early, and cast, making good supers.

The object of the bee-keeper now should be to obtain populous colonies as the honey season approaches, and this may be accomplished providing colonies are sufficiently strong to maintain the heat necessary for the production of brood in the hive, and the method is gentle continuous feeding. By this means a colony is deluded into the idea that the season is at hand, and the increase of brood so much desired prior to the honey harvest is brought about early enough for the bees to participate in the gathering, instead of afterwards, as would be the case if the increase was left until the flow from natural sources was depended upon.—E. E.



Growing Beet for Sugar.

We thought that the refusal of rebate by the Government on home-grown sugar had settled this question, at any rate for a year, or perhaps many more, but we have been asked three questions by a correspondent, viz., (1) How far, if at all, can beet for sugar be grown in England? (2) What reasons other than our Tariff Policy make British industry unproductive? (3) Would it be safe to venture twenty or thirty acres for beet culture here?

Whether our correspondent wishes to venture twenty or thirty acres in a British industry which is unproductive, we may safely leave to him; but we suppose that he is referring all the time to sugar beet. Well, we believe that the home production of sugar has been well advertised during the past four years, but we do not yet see British home-grown sugar ticketed in the grocers' shops. Whether any British-grown sugar beet has been converted into sugar and put on the market in a mercantile way, we do not know. At any rate, we have not been confronted with a sample of it. Lord Denbigh has interested himself very much in this question, but whether he has solved the problem of profitable cultivation we cannot say.

A most influential deputation of farmers and merchants visited Germany about two years ago to examine and report on the sugar beet industry as carried on there. The deputation was almost entirely from Lincolnshire and Cambridgeshire, which contain the greatest area of land suitable for the growth of sugar beet. This body of sensible men came back with two conflicting impressions of their visit. The first was that sugar beet production in Germany was a national industry, conducted on an enormous scale with a view to the national advantage. The other was that British beet growing would not pay unless it were on the same terms.

What are the equal terms? There can be none. Germany has a great area of land eminently suited to the growth of beet. The area is well situated as regards water and rail transit, and the fact that German railways belong to the nation is a great help to this national industry.

We dealt with the possibility of growing sugar beet for profit (in England) in this column in the issues of March 8, 22, and April 5, 1906, and as nothing has resulted so far in the way of building sugar factories, or growing the beet to supply them since those dates, we must conclude that our warning criticisms were justified.

We have answered question (1) to the best of our ability and knowledge. As regards question (2), viz., as we understand the question, What reasons other than our Tariff Policy make British sugar growing non-productive? we can reply that there is very little land in England suitable for producing heavy crops of sugar beet, and the greater part of that land is already occupied in producing crops of greater value and importance to the nation, viz., potatoes, green vegetables, carrots, and all gardening crops. If our Government were to allow a rebate of the sugar duty to home growers, there would be encouragement to build factories and set up the costly plant necessary to them; but factories cannot be started profitably in a small way. Three thousand acres of beet annually are required to provide a fully equipped twentieth century factory. There can, therefore, be no doubt that sugar production in this country can be no minor industry; and will exist through co-operation, or not at all.

The third question asks whether it would be safe to venture twenty or thirty acres for that purpose "here." Wherever "here" may be, we must say "No," unless, as is most unlikely, a factory has already been opened within easy reach, and provides a good local customer. It would be utterly absurd to grow twenty or thirty acres of sugar beet unless a good market were assured. Beet sugar production cannot be managed on a small scale. The cost of manufacture would be prohibitive in converting such a small quantity of roots. There is a considerable difference in the price of labour in Germany as compared with England; quite sufficient to account for success and failure.

We believe that quite as good beet—that is, as regards quality—can be grown here as on the Continent. The Bounty system has built up a great industry abroad, and the removal

of the bounties would probably in time very greatly interfere with the progress of sugar production there. Government assistance of a similar kind is needed to make beet sugar growing pay here.

A short time ago plans were formulated in South Lincolnshire for the building of a sugar factory. Some £60,000 or £70,000 of capital was required, and could have been found, and the necessary beet to keep the factory supplied could have been grown; but the scheme fell through, or rather was shelved, for want of sympathy and encouragement on the part of the authorities in Whitehall.

Work on the Home Farm.

We have had one day of heavy rain, otherwise the week has been a very fine one, with strong drying winds; yet we have very little bright sunshine, and the land is cold for the beginning of April. We see drills at work every day, but a great deal of corn remains to be sown. Clover seeds are better sown at once after the barley drill, and all harrowed in together. Sometimes clover is troublesome amongst the corn when harvesting, as some of it was last year, but clover is so valuable on a mixed farm that no risk of failure should be taken in trying to obtain a good plant. It is curious how very various the root crops have been. We have seen sheep in very poor condition this spring for lack of turnips; and barely ten miles away farmers are buying sheep to clear off the acreage still left.

A farmer who has ridged and manured part of a field is now splitting the manure in, and will leave the ridges to dry until he sees fit to drill mangolds later in the month. He will have a capital seed bed if there be no very heavy rain, but, of course, he will have that to risk.

How very common now are manure and small seed drills! It is almost as rare to see a man sowing manure or clover from a hopper as it is to see one sowing corn. We do not think that there is one labourer in this parish under the age of fifty who could sow either corn, clover or tillage in a workman-like way. Thousand-headed Kale may be sown any time. It is a plant which likes time in which to grow, and its great value is for autumn food. It is generally sown much too thickly, which necessitates more hoeing than should be necessary, besides wasting valuable seed.

In spite of local epidemics of influenza, horses are healthy, and the foaling season has commenced favourably. There is a very strong demand for useful farm horses, almost anything making up to £20. We heard an opinion expressed that the scarcity was chiefly caused by the briskness of the export trade to the Continent.

With an absence of night frosts, and with plenty of moisture, grass is looking much fresher, and the demand for growing cattle is much improved. They are quite 30s. per head dearer than four weeks ago.

Trade and Miscellaneous Notes.

Carnation White Enchantress.

Owing to pressure of other duties, we omitted last week to append a notice of the fact that our photograph of the vase of Carnations White Enchantress was copied from our American contemporary "Horticulture," in whose pages the variety was figured as Georgia, which is similar to White Enchantress.

Letchworth Garden Design Exhibition and Competition, 1906.

Class 1.—Design for gardens of a suburban residence, drawings of which will form part of the particulars furnished to each competitor. These drawings will include a site plan giving levels. Class 2.—Design for gardens for above to include a Rose garden. Class 3.—Design for gardens for above to include a Kelway herbaceous border. Prizes: class 1, first prize, £5. Class 2, first prize, £3 3s., given by Robert Harkness, Rose grower, Hitchin, Herts. Class 3, first prize, £5; second prize, £3 10s., both given by James Kelway and Son, Langport, Somerset. Class 4.—Design for gardens for a block of ten cottages to be built as a speculation on a corner site, six facing east and four facing north. Drawings, including site plan with levels shown thereon, form part of the particulars supplied to competitors. Entrance fee for each of the above classes, 2s. 6d. For particulars write to Estate Office, First Garden City, Ltd., Letchworth, Herts, inscribing letters "Garden Design Competition." The drawing embodying part of the particulars given to each competitor has been kindly prepared for the purpose by Messrs. Barry Parker and Raymond Unwin, architects, Letchworth. Note.—All designs sent in for the competition, which are to reach the Estate Office, First Garden City, Ltd., Letchworth, not later than June 1, must bear a nom de plume only, and must be accompanied by a sealed envelope giving the author's name and address. Designs sent in for class 3 are to become the property of Messrs. James Kelway and Sons.

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can be more safely transferred from the rearing to the transplanting ground as they are at rest, and the ground has yet to be got ready for them.

Very often the proprietor will not allow alterations and additions while in residence; perhaps does not give orders until the autumn is spent, and the winter advanced. In such case let the alteration be completed by the Easter holidays, or at latest, Whitsuntide. In this way the turned up raw soil gets weathered by the nipping frosts, dry cutting winds, and withal warmed by the sun, so that when April gives mildness and gentle showers, the surface crumbles, and fine ameliorated earth is handy for placing under and around the roots of the trees and shrubs.

The great objection to late spring planting is the need, often more assumed than real, of watering at and after planting. In transit, especially over long distances, the roots are liable to be dried and the soil in that case falls away, and thus a severe check is given; or if the balls are intact, the soil has become more or less dried. In such cases, soaking before planting is sometimes practised, but I found this very bad practice, as the treading in planting pressed the soil too closely for the free protrusion of new roots. A light sprinkling of water from the watering can and covering up with matting package material for a few hours, is better procedure; and the soil being moist, very little, if any, after-watering will be necessary. This, of course, is a matter for careful seeing to afterwards, for no plant can imbibe nutriment from a dry-as-dust soil, and it will indicate need or otherwise for moisture by the limpness or flagging of the young growths. It is better to wait until the indications for need of watering are apparent than to seek to prevent such by soakings of water at stated periods, which, by keeping the soil sodden, is the way to prevent root emission and facilitate failure.

Another very bad and common practice is to form a dish for holding water close to the stem, or so that the water supplied deluges the stem. The proper way is to keep the basin away from the stem, the soil there as high as at the outside of the dish, and let the middle of the ring be just within the circumference of the ball.

Now in most cases of general spring planting the water-barrel, hose pipe and water can, have to be dispensed with, for want of contiguous water, but by adopting the following method success is assured. The woodman or forester prepares the holes for planting some weeks beforehand, and though the holes may stand more or less waterlogged during the late winter, he does not disturb the plants in their winter sleep till the holes become clear of water. He now has fine soil for planting with for close contact with the roots, and also with the adjoining ground, and the moisture from the very disturbance of the earth's crust at the particular places of planting seeks outlet for its capillary action. Thus the pits are the moister parts in droughty periods, and the plants profit accordingly. By notch-planting something of the same nature is induced as by pit-planting, all breaking up of the earth's crust meaning more moisture in that part.

The idea to be grasped is that of root formation being simultaneous with the formation of the growth buds. Some rooting may take place from late summer or early autumn planting, but the callus of severed roots and the protrusion of roots from the callus is dependent upon the activity of top growth, therefore the work of re-establishment and recuperation is most promoted under the impulse of the awakening of Nature in the spring. It means warmth, congenial atmospheric conditions, soil moisture in a state readily imbibed, and its contained elements of nutrition speedily assimilated and utilised in building up new parts both above and below ground.

The foregoing remarks are intended to apply generally, and to evergreens in particular, which embrace conifers. In no instance defer removal until the growth is advanced, for that entails much loss of roots and great waste of energy. The great incentive to growth is stored matter acted upon by warmth. What stored matter is there in a young growth? The cutting of a *Pelargonium* or *Fuchsia*? Not much, I grant; and neither will grow unless given the conditions favourable for elaborating and making a callus, which are warmth and moisture. Stored substance makes just all the difference in many cases of propagation by young growth cuttings. What we utilise in the Gooseberry or Currant cutting the planter endeavours, or should, to secure for the developed tree or bush. Catch it directly, or just before, the flowing of the sap commences in the case of deciduous trees and shrubs, and especially in evergreens. Many plants push roots in advance of the growth; indeed, most ligneous, and not a few herbaceous ones, do; therefore regard must be had to their differences in this respect.

All that can be said for winter planting is its convenience. In the case of evergreens, winter planting is inadvisable; and in respect of conifers and other choice evergreens, the best time for removal is late summer. Spring is the better time for conifer planting, and even for that of evergreens with broad-

leaves liftable with balls by reason of their fibrous roots. Such, it may be said, can be safely removed at any time of the year. That is true; but experience tells me that it is not wise to take an evergreen from a sheltered place in midwinter, or even autumn, and plant it in a position more exposed, or even in a soil where it will be waterlogged.

There are, of course, plants and plants. The thinly grown, sturdily-built-up subjects are generally the most reliable, even when they cannot be moved with balls, for they have a better root formation, and they possess more stamina. Parsimony in tree purchasers is the worst thing I have ever had to deal with. A job lot of Pines was once given me to plant, being what was termed cheap; but they proved the dearest of any I have dealt with. They took the same amount of labour as for planting a like number of plants of the same age and kind, all the difference being that the former had been grown thick, and the latter thinly. The time of year was the same—spring, so that exposure could not make the difference.

How late may spring planting be practised? I really cannot say. The latest I have performed was on the 10th of May, the plants being Scots Pines, sturdy fellows, 12in to 15in high, and as broad as high, not a particle of soil adhering to the roots, and they all grew—thousands of them. That was in the plain of the Mersey—a contract affair for planting several acres in clumps or plantations. It was a notable fact that while there were many gaps to fill up in the winter plantings, there were not any in the spring-set trees.—G. ABBEY.

In 1893, E. G. Lodeman, late instructor in the Department of Horticulture of the Cornell University prepared a sheet designated a spray calendar, which was published by the Experiment Station. This marked the appearance of the first publication of this kind.

Spraying.

The spray calendar has appeared in many forms under the authority of many writers and institutions since that time. The Cornell publication has grown from the chart to the pamphlet form. Each year there is a distinct demand for this type of information. Fruit growers and farmers realise more clearly as each planting season returns that success often depends as much upon the application of intelligent methods in combating plant parasites as upon the management of the soil. If the writers of spray bulletins considered the experienced orchardist or nurseryman only, many of the details found in its pages might be omitted, but we must bear in mind that there is constant change in the ranks of the farmers, fruit growers and nurserymen of the country. Old men are continually dropping out. Men new to the calling are taking their places. The city man becomes a gardener, then an orchardist, then a nurseryman. The suburban resident takes an interest in crop growing and develops a desire for a farm. These men and the young men need information, need boiled down directions for holding the enemy in check, and some offer again condensed directions for the control of insect enemies and plant diseases. No man may be expected to carry all the formulas in his head, but he should know where they are to be found.

Theoretically, man, the dominating figure in the animal kingdom, should be able to so pit one parasite against another as to maintain an equilibrium between friend and foe in the plants he cultivates. This may be ideal, but it is not presently attainable. In the meantime, San Jose scale spreads, canker worm and caterpillar devastate, codlin worm and curculio destroy the fruit, and blight blasts the Pear and Apple orchards. So the fruit grower must be up and doing.

Cornell spray calendars have said that spraying is a type of orchard insurance. Growers ask, Shall I spray when I have little or no fruit? The answer is, Yes, by all means. Insure your trees a crop of healthy leaves so that wood may be grown, and buds developed. This is the best way to secure a crop the following year. The man who sprays year in and year out insures his crop against standard enemies, and to a large degree against epidemics, and tends to lessen the numbers of his staple insect foes. First know the enemy. Study the crops you are growing, and you will learn to recognise the parasites which attack them. Learn the feeding habits and the principal facts of its life history. Then study the remedy, understand its principles—how it acts. Next secure the appliance which seems best adapted to your needs. Prepare your spray mixture carefully and apply it thoroughly. Next to timeliness, thoroughness is of prime importance. Hundreds of fruit growers and farmers waste time, energy and material by indiscriminate and hasty squirting of spray mixtures over fruit trees and farm crops. Remember the principle is protection, and the plant is protected only when it is covered. Some insects must be hit to be killed. Don't spray unless you do the work thoroughly. You will disgust yourself and destroy your neighbour's faith in the remedy. Spraying is not pleasant work, but if we are fruit growers or farmers, we must accept the situation and make the best of it.—("The National Nurseryman.")



Odontoglossum Rolfeae meleagris.

In December, 1900, Mr. Stevens, the celebrated grower at Walton Grange, placed before the R.H.S. Orchid Committee a superb variety of *Odontoglossum Rolfeae* named *meleagris*, to which the committee recommended not only a first class certificate, but also a cultural commendation. A flower of this variety is shown. The splendid sepals and petals have a ground colour of milk white with occasional rose suffusion and very profuse mauve markings. The broad handsome lip is white on the front portion with mauve spots and blotches at the base. It was a magnificent plant, in every way worthy of the honours bestowed upon it. This is a really remarkable variety of the famous hybrid named after Mr. Rolfe, and the progeny of *O. Harryanum* and *O. Pescatorei*. I consider it is by far the prettiest that has as yet been exhibited, and it was well deserving of the first class certificate. The spotting is lovely and the colour almost indescribable, the pretty rosy tips of the segments being wonderfully attractive, while the lip, square looking as it is in all these hybrids, is magnificent both in size and colouring.—R.

White forms of *Laelia anceps*.

Having been successful in flowering these plants, a few notes on the mode of cultivation adopted may be of service to those readers who have not been as successful with them as they would like. Assuming that the plants are of good size and properly established, pans are preferable to pots, and they should not be disturbed too often. When not potted a top-dressing should be given, if such be considered necessary. The compost for potting ought to consist of good fibrous peat with a sprinkling of sphagnum moss (rather more than is generally used for *Cattleyas*). As abundance of light and air is required, the best position for the plants (if there is no special house provided) is on the side stage at the cooler end of the *Cattleya* house, where they can be especially treated. To produce strong, sturdy flowering growths, it is necessary that they should not commence to grow too soon; those that commence in May are more likely to flower than those starting earlier, as they have the advantage of the longest and brightest days in which to form and complete their growth. When growth commences give the plants all the light available, only shading during the hottest hours. Air should be given in abundance, the bottom

ventilators being wide open on all favourable occasions, and the side lights, where possible, on the hottest days, should be opened wide enough to admit air without causing a draught.



Odontoglossum Rolfeae meleagris.

A minimum temperature of 70deg should be maintained during the day, with a night temperature of 65deg, a little air being admitted through the top and bottom ventilators at all times. After a very hot and bright day the night temperature should be allowed to fall slightly lower if possible, as this gives the plants a rest, which enables them to recuperate their energies for the next day, and tends to solidify the growths. Syringe the plants twice daily during bright weather, taking care that the first syringing is done after the temperature has risen to the required height for the day, and that the second is done sufficiently early for the moisture to dry up before nightfall; omit all syringing on dull days. By following these simple instructions success is practically sure to come as a reward for the efforts made. Amongst the numerous forms that are grown, *Laelias anceps alba*, *Sanderiana*, *Stella waddonensis*, *Schröderiana*, *Dawsoni*, and *Williamsi* are all excellent.—J. P. B.

Thunias.

This is a small genus of deciduous terrestrial orchids, which give good results when provided with a light position in the ordinary plant stove, such as that enjoyed by *Crotons*. Otherwise they may be included among the *Dendrobiums* for the growing season. For these vigorous-rooting subjects, annual potting is advisable; and the soil should consist of one-half fibrous loam, one-fourth peat, and one-fourth leaf mould, not over decayed, with a small portion of crushed crocks added, say a 6in potful to every bushel of the mixture. The drainage must not be overdone, just three or four pieces of broken potsherds being sufficient, over which can be placed a thin layer of loam fibre, or semi-rotten manure. To obtain the best results from a decorative standpoint, four of the strongest bulbs (which are biennial) should be arranged in a 24-sized pot, but for the lesser ones, five will be found more convenient.

The new growth is now in a condition for repotting. All the old material and roots are removed excepting a small tuft, which will help to keep the bulbs steady till they



Laelia anceps waddonensis.

are re-established. Each bulb should be neatly tied to a small stick, and the growing point ought to be placed so that it will grow towards the edge of the receptacle. Press the compost moderately firm, and when the operation is finished the surface must be half an inch below the rim, to allow space for watering purposes. During the first few weeks little water is necessary; but moist surroundings are essential, and when the soil becomes permeated with roots the supply must be considerably increased. After flowering, *Thunias* gradually go to rest for the winter. The tips of the leaves commence to decay, and at this period they should receive full sunshine and less water; in fact, some cultivators place them out in the open air till the bulbs are thoroughly ripened, when they ought to be taken in and be stored on a cool, dry shelf till the following spring. *Thunias* produce large flowers upon terminal racemes, which possess a drooping habit, and form a very effective section of orchids at a time when flower is not too plentiful. A selection of the principle species would include *alba*, *Bensoniana*, *Marshalliana*, and *Brymeriana*; all native of Burmah, excepting the first named, which hails from Northern India. Of the hybrids, *Veitchiana* is probably the best, especially some of the varietal forms.

Arpophyllum.

At a recent meeting of a gardeners' society I saw a strong healthy plant of *A. giganteum*, with several spikes 10in or 12in long, carrying a wealth of rose-purple flowers, which individually are small; but the number, and the way they were so closely arranged, fully compensated the grower for what he lost in size. There is another plant, viz., *A. spicatum*, which resembles the preceding very closely; but the flowers are a reddish-purple. The pseudo-bulbs are slender, and the leaves somewhat leathery, while the spikes stand well above the foliage. Their cultural requirements are few, and if given the same treatment as advised for *Laelias* and *Cattleyas*, little difficulty will be experienced in bringing them to perfection.—T. ANSTISS.

Laelia anceps.

Laelia anceps will be commencing to grow and root, and if repotting or top-dressing is required the matter should be attended to without delay, so as to give them a long growing season. They make harder bulbs when grown cool. As a rule they will not need fire heat after May until the autumn. The autumn-flowering hybrids seem to be replacing them in many collections, as they are easier to grow; still these do not throw spikes like *L. anceps*, and I do not think the latter are beaten in beauty yet. The general complaint against *L. anceps* is that it will not stand fogs, but it does well here, and flowers well without any special attention, while the flowers also stand well, though it is a very foggy district in winter. We are just half way between St. Helens and Widnes, both chemical manufacturing towns, and it would take a good London fog to beat some of ours, both in flavour and density. When it clears off our greenhouse roofs look more like slate than glass.—("W. J. M." in "The Orchid Review.")

Spring Blossoms.

Spring is late in mid-Herts, vegetation backward, yet there is great promise of Cherry blossom, there being a few orchards of the variety for which the county of Herts was once famous, namely, *Corone*, or Hertfordshire Black, and where the Wild Cherry, perhaps, more obtains in stately proportions in woods, and bears more "witches' besoms" than other counties or shires can boast, and the Pear may be seen here and there wild. Plums and Damsons are also bursting into blossom, and the Pear trees are smothered with flower buds ready to open, and some opened. Apple trees are scarcely moving, yet they promise abundance of blossom, while Gooseberry bushes are in leaf and evidently mean business if only the frosts permit. Currants are similar, and "big bud" seems only to trouble where it has been brought in by recently introduced plants, though the Hazels in the coppices, woods, and hedges are famous for the plentitude of their "big buds."

Beyond the fragrant Honeysuckle (*Lonicera fragrantissima*), and the Flowering Currants (*Ribes sanguineum*, *R. albidum*), with *Berberis aquifolium*, there is little to cheer in the way of flowering shrubs, excepting *Laurestinus*. Even the Almond tree is only beginning to flourish, its first flowers opening on the 10th, being preceded by a week by *Prunus Pissardi* (*P. cerasifera atropurpurea*). Daffodils, of course, are coming—some in their glory, and the Primroses are in charming display, while Wall-flowers appear to be keeping back their showiness and fragrance for the Eastertide holiday folk. Hyacinths are coming into bloom very uncertainly, and the Tulips look very stunted and poorly promising. In the herbaceous border the double Arabis and the Aubrietias are the gems, with *Pulmonarias* vying and developing their spotted leaves.—G. A.

Hothouse Construction.*

When it is proposed to build hothouses, the first thing to be done is to select a site. Whether the estate be a large or a small one, there is usually a walled-in kitchen garden, and in ninety per cent. of such cases the hothouses will be placed along the north wall, facing south or nearly so. Where there is no walled-in garden there may be more freedom of selection, and a block of span-roofed houses may be erected for both plants and fruit. If possible, the site selected should be level or nearly so, in order to avoid having a lot of steps.

The relation of the glass houses to the dwelling-house has to be considered, and in all cases different requirements have to be taken into account. In one place it may be a *sine qua non* that the glass must not be seen from the house; in another case, this may be of no consequence, possibly the houses may even be wanted to be seen from the dwelling-house. If possible, the hothouses should be placed so that the prevailing wind will not blow the boiler smoke over them or against the dwelling-house. Anthracite coal or coke can be used to overcome this difficulty; but in Scotland, where it is so plentiful, there can be no guarantee that soft coal will not be used at some time or other. The site for the houses should be as sheltered as possible, without being overshadowed by trees, especially on the south, east, and west.

When hothouses are to be erected against a wall, they must, almost of necessity, be of the lean-to or three-quarter-span form. For fruit especially, lean-to or three-quarter-span houses are very suitable; but for plants, span-roofed houses running north and south are better. The borders in a garden are seldom deep enough to permit of span-roofed houses of any great length running southwards from a north wall, but generally lengths of from 20ft to 25ft can be got.

Formerly the usual arrangement of a range was to have a span-roofed conservatory running north and south in the centre, with lean-to or three-quarter-span houses on either side. There was a vinery on each side of the conservatory, with perhaps a Peach house at one end and a greenhouse or forcing house at the other end of the range, the plant and fruit houses being mixed together. A very much better arrangement, and in my opinion the proper one, is to keep the plant and fruit houses quite distinct, and in a large job this would almost certainly be done. In such a case possibly the fruit houses would be in the kitchen garden, and the plant houses in or near the flower garden; but where both classes of houses are in one place, this division of the houses can be accomplished by introducing a gap, or a cool porch or corridor, between the plant and fruit houses. An infinite number of changes can be made on these plans without departing from the principle I have laid down. I do not suppose there ever were two sets or ranges of houses exactly alike in all particulars; but in every case the stove or other warm houses should be kept away from the vineries, even if the other houses have to be connected to them.

Plant houses of span-roofed form should be 11ft or 12ft wide for a single passage and two stages. If a centre stage or bed is desired, then the house should be not less than 18ft wide. A house at any width from 14ft to 16ft, which is very frequently asked for, is not wide enough to allow for two passages with sufficient width of centre stage, and it is unnecessarily wide for a single passage and two side stages. If a house more of the nature of a conservatory is wanted, with accommodation for chairs or tables, then a wide open floor space can be left with a stage all round. But for an ordinary house with staging, widths from 14ft to 16ft should be avoided.

The height of the house is an important matter. As we are all aware, better plants can be grown in low houses than in high ones. Market growers' and nurserymen's houses have often barely headroom in the passage. A height of from 5ft to 5½ft from the floor to the eaves is reckoned a good useful one, and the roof should rise at about 34deg, or one-third of its width if a span-roofed house; less will suffice in some cases, but that is a good average pitch for plant houses. When it is desired to accommodate very large plants, it is a good plan to arrange the house so that the centre part will be available for tall plants, and the sides, under the lower roof, for smaller sized plants. In a house of this character, or in any conservatory, the height of the sides may be increased to 7ft from the floor, which will allow of a door being formed in any side or end under the eaves without a pediment over it being necessary.

The brick or stone walls of plant houses may either be about 2ft 6in high, with the side ventilators in the glass framework above the stage level, or they may be about 12in high with the glass down to this level, and the ventilators arranged in the lower part of the framework below the stage. The latter arrangement has many advantages, especially in winter, when the

* Paper read at the monthly meeting of the Scottish Horticultural Association, on December 3, 1907, by Mr. Alex. Mackenzie, of Messrs. Mackenzie and Moncur, Limited, Edinburgh.

cold air coming in at the ventilators has the chill taken off it by passing over the pipes before coming in contact with the plants. The top ventilation of plant houses may be either by means of sashes flush with the roof, with opening gear, or by means of side sashes in the lantern.

Plant houses of lean-to or three-quarter-span form, if only about 12ft or 13ft wide, are usually arranged with a front stage or bed, and a stage with one or more risers upon it against the back wall. If they are wider than 13ft, the back stage is too wide for comfortable working, and a second path should be introduced, with a border for creepers between it and the back wall. There will thus be a front and a centre stage, and a border.

Fruit houses are mostly of lean-to or three-quarter-span form, according to the height of the back wall, whether it is in existence or has to be built. The width of these varies a great deal. Vineries may be anything from 14ft to 22ft wide, and 16ft to 18ft will be found to make a very good average width of house. Peach houses may be rather narrower than vineries, say 13ft to 16ft. Span-roofed fruit houses should be as wide as possible, within reasonable limits, as they are practically double houses. In a span-roofed vinery the canes are planted along each side, and to get the full benefit each side of the roof should be the full length to which the cane will profitably grow. If a lean-to vinery should be 16ft to 18ft wide for one set of canes, a span-roofed house should be 32ft to 36ft for two sets of canes. This width is not, however, very practicable for private establishments, although the vineries at Clovenfords must be about as much. It is usual to make span-roofed vineries 22ft to 26ft wide, and sometimes they are made steeper in the roof than lean-to houses in order to get more length of rafter and trellis. Span-roofed Peach houses, as in the lean-to and three-quarter-span forms, may be rather narrower than vineries. Fruit houses are usually much lower at the sides than plant houses; indeed, old vineries sometimes have no upright framing, the roof resting on a very low brick wall in front. The usual height now is 12in of a brick or stone base, and 2ft 6in to 3ft 6in of a vertical glass framework, with sashes to open for ventilation. That makes a height of 3ft 6in to 4ft 6in at the eaves, but, as it is usual in a vinery to have the doors and pathway near the back wall, this low height at the front does not interfere with the headroom at the passage. The pitch of the roof for vineries, Peach houses, &c., should be rather steeper than for plant houses, say 40deg to 45deg, and it should be even steeper for span-roofed houses.

It is usual to build the front wall of vineries and Peach houses with foundations about 3ft deep, with arched or lintelled openings along the front, so that the prepared border can be dealt with without interfering with the stability of the building, and in order that the roots may reach the outside border. There are differences of opinion as to the utility of outside borders, and, as they are not required at first, the openings are frequently built up with screen walls which can be removed when desired. It is also necessary to roughly concrete the bottom of these borders with a slope to the outside.

The pathways of plant houses may be of many different materials, such as gravel, ashes, cement concrete, tiles, and so on. In plant stoves, &c., they are sometimes formed of grooved cement concrete so as to hold moisture. Ordinary passages should not have kerbs, and they should be laid with a fall to each side to run off the water. Concrete should not be laid below the stage floors, so that the drip from the plants may soak away. This part may be gravelled or planted with ferns or creepers. In fruit houses the pathways should be of some portable form, so as to give access to the soil below, and they should also be of an open character so as to allow the sun and air to assert their influence on the soil. The two principal kinds of pathway are cast-iron gratings and sparred wood. Cast-iron gratings, in checked rails, resting on brick piers built from the bottom of the border, make the most substantial and durable pathway. Sparred gangways, with the spars set across the path, resting on bearers on brick piers, make very good paths, and if made of hard wood, such as Jarrah, last well.

The stages or tables in plant houses may be of various kinds, such as sparred wood, slate slabs in iron framework, galvanised corrugated sheet iron on iron framework, and so on. My own opinion is that corrugated sheet-iron and wrought-iron framework should not be used, except in cheap work, as they last only a few years, especially when covered with ashes, as is usually the case. Slate slabs 1in thick, with cast-iron framework, make the best stage, and sparred wood is very suitable for cool houses. In all cases cast-iron legs should be used. In orchid houses there should be two tiers of staging; the lower one to contain coke or gravel to hold moisture, and the upper one of sparred wood to carry the plants. In the best class of work the legs of these upper stages rest on the centres of saucers containing water to prevent slugs, &c., getting up to the plants. In propagating houses, and in Melon and Cucumber houses, there is usually a wall next to the path, and a cast-iron grating over the pipes to support the soil.

(To be concluded.)

NOTES & NOTICES

Appointment.

Mr. Hunter, orchid grower to Lord Tankerville, Chillingham Castle, leaves shortly to be head gardener to the Duke of Marlborough, Blenheim Palace.

Retirement of Mr. J. Mallender.

We learn of the retirement of Mr. J. Mallender, for forty years head-gardener at Hodsock Priory, Notts; and a biographical notice of this respected gardener is in type, but has had to be held over until next week.

The Ghent Show.

We would remind our readers that the celebrated Ghent quinquennial horticultural exhibition will be opened on Sunday, April 26 next, continuing during the week. Communications should be addressed to Monsieur le Secrétaire de la Chambre Syndicale, 85, Digue de Brabant, Gand (or Ghent).

National Auricula Show.

The National Auricula Society's (Northern Section) thirty-fifth annual show will be held at the Coal Exchange, Market Place, Manchester, from 1 to 6 p.m. on Saturday, May 2, 1908, when there will be exhibited a collection of beautiful show and alpine Auriculas and gold-laced Polyanthus.—J. W. BENTLEY, Hon. Sec., Stakehill, Castleton, Manchester.

Agricultural Science Prize.

The Board of Agriculture and Fisheries has received from Mr. Martin Sutton and Sir George Barham, on behalf of the Dr. Fream Memorial Committee, of which the Earl of Jersey was the president, the sum of £200, the income from which will be applied to provide a prize of books to be competed for each year by students in the science of agriculture. So long as an examination is held by the National Agricultural Examination Board for the national diploma in agriculture the prize will be awarded to the person who obtains the highest marks in that examination. Owing to the generosity of an individual donor, the Board will be in a position to award a sum of £5 as a Fream Memorial Prize at the next examination for the diploma.

The Association of Economic Biologists.

The sixth (and annual) meeting of this society will be held at University College, London, on Wednesday, April 15. The following is the programme:—11.30, council meeting; 12, annual meeting; 12.30, general meeting, 1. "The pecking of fowls and their vision," Mr. E. Stearns; 1.0, adjournment for lunch; 2.0, 2, "On the inter-relation between Entozoa and their hosts," Mr. A. E. Shipley, F.R.S.; 3, "The predisposition of plants to parasitic diseases," Mr. H. T. Güssow; 4, "The need of an organised enquiry into the feeding habits of British birds," Mr. C. Gordon Hewitt; 5, "The possibility and danger of the introduction of the San Jose scale into Great Britain," Mr. Walter E. Collinge; 6, "An important factor in the natural control of the large Larch sawfly, *Nematus erichsoni*," Mr. C. Gordon Hewitt.

"Bird Notes and News."

This quarterly publication of the Royal Society for the Protection of Birds (3, Hanover Square, W.) prefaces its spring number, which is the first part of a new volume, with a charming portrait of the society's president, the Duchess of Portland. A supplement portrait is also given of the Earl of Stamford, chairman of the annual meeting held a week or two since. The literary contents include an article on "Bird-watchers," dealing with the urgent need that exists for the better protection of our rare birds; reports of numerous bird and tree (Arbor Day) celebrations promoted by the society's challenge shield competitions; "The plume trade," "Economic ornithology," &c. The number appears in a new cover designed by Mr. Lancelot Crane. The magazine is issued primarily to members of the society, but can also be obtained for a subscription of a shilling a year.

Child Gardeners.

The efforts of Mr. A. Cameron Corbett, M.P., to brighten the lives of South London children were exemplified by the Hyacinth show held last month at Canon Allen Edwards' Institute, South Lambeth, when about 600 prizes were given to those who had reared blooms from the bulbs presented to them in December.

Forestry and the Death Duties.

At a meeting of the Gardeners' and Foresters' Society of Argyllshire held at Oban—Mr. Macdonald, of Barguilean presiding—a resolution was adopted to represent to Parliament that the heavy death duties payable to the Government in respect of woodlands deter and prevent the extension of planted areas in Scotland, and that if the burden was removed encouragement would be given to those who were in a position to extend their woodlands. In the course of a discussion on the motion, it was mentioned that the death duties was only one of the many heavy burdens on timber land. Mr. J. D. Sutherland, Oban, referred to the case of an estate in Argyllshire on which within a period of about fifteen years, the woodlands came three times under valuation for death duties, during which period the revenue derived from them was practically nil. It was agreed to forward a copy of the resolution to Mr. Ainsworth, M.P., for presentation.

The Timber Famine.

Mr. Sime, of Messrs. Bell and Sime, timber merchants, Dundee, is not at all scared by the alarmist talk and writing about a coming timber famine. He points out that from his own knowledge of some of the largest exporting firms in Sweden and Russia, the annual growth in their forests was equal to their annual cutting, so that their trees and their business would go on for ever. Besides, there was Russia with its immense virgin forests of Siberia, which would supply the demands of Europe for a hundred years, and then there were the boundless forests of Western America and North-Western Canada, and the unexplored forests of Brazil and Central Africa. The great forests of Burmah and Siam were adding to their growth year by year, Manchuria had great forest resources, and so had Australia and New Zealand. In view of these facts, therefore, the threatened, or, as Mr. Sime calls it, the promised timber famine, will not project its shadow over the world in any great hurry. At the same time, the afforestation of suitable land in this country should not be neglected, but in view of the long period required for the growth of a timber crop, and also in view of the heavy death duties, &c., that is a work which can only be satisfactorily taken in hand by the Government.

Mr. Geo. Berry.

In the course of a biographical sketch of Mr. Berry in a northern contemporary, the writer goes on to say:—"In the summer of 1904 Mr. Berry was appointed horticultural lecturer to the Edinburgh and East of Scotland College of Agriculture, the duties being similar to those he had been discharging in the south of the Tweed, with this marked difference, that, instead of having two counties under his charge, he had to tackle twelve counties, stretching from Berwick to Forfar. At Mr. Berry's instigation, and under his direction, demonstration fruit plots have been laid down at Blairgowrie, Broughty Ferry, Newburgh, Dunfermline, and Drumgeith, and one for Cupar is contemplated in the near future. It will be seen that Fife has been most responsive in this matter, and Mr. Berry does not mean to rest satisfied till he sees this spirit of enterprise emulated by all the twelve counties under his charge. Mr. Berry's weekly evening class, conducted during the winter months at the College, 13, George Square, Edinburgh, is largely taken advantage of by young gardeners and others, the attendance last session averaging fifty. The present session opens on October 18 at 8 p.m., and the fee for the session is 5s. Last year the college authorities rented a piece of ground in the vicinity of Edinburgh, and here Mr. Berry has been giving a practical course to schoolmasters, to enable them in turn to teach horticulture to their senior scholars, by the establishment of school gardens at their schools. As yet the class is restricted to thirty, and has been fully taken advantage of throughout an area ranging from Roxburgh to Oban."

The Late Prof. Willis Grant Johnson.

We regret to learn, through the American papers, that Prof. Willis G. Johnson, Associate Editor of the "American Agriculturist," died at his home in New York City on March 11. Prof. Johnson was well informed on agricultural topics and fruits, and especially on fruit tree pests, having formerly served as state entomologist of Maryland. He had a very wide acquaintance, and the news of his death in the midst of his usefulness will be a severe shock to a large circle of friends. Prof. Johnson was an earnest, self-reliant, always busy man, courteous and companionable in manner, and a ready talker on every phase of farm and garden work. He leaves a wife and two children.

Removing a Tree Weighing 16 Tons.

The transplanting of ordinary trees is a small matter, but to transplant a tree weighing sixteen tons may be called a difficult undertaking. This, however, was successfully accomplished at the residence of Alexander M. Lindsay, Rochester, N.Y. The work was under the direction of W. Tichner, a landscape gardener. The tree was undermined, leaving the large roots encased in a ball of frozen earth. The distance across the space occupied by the roots and frozen earth was between 13ft and 14ft. Having undermined the giant, the work of lifting the heavy tree with the earth-encrusted roots across a space of 40ft to where it was planted again, was accomplished. Rollers were in this case employed in moving the tree, but in most cases specially constructed waggons are used for transportation.

More About Gooseberry Mildew.

The introduction of the American Gooseberry mildew to England has stirred up a pretty confusion at the Board of Agriculture. We sympathise with the Board, for while one learned "doctor" says, "This disease will spread ruin in every Gooseberry plantation," another retorts with, "Pooh-pooh!" And the Board first listens to one, then to the other, and changes about until, in desperation, the officials resolve to let matters alone and leave the results to Providence. This is the history of the present Gooseberry mildew agitation in summarised form. The Kent growers have just sent us a long report of their deputation to Lord Carrington at Whitehall, where they asked his lordship, as President of the Board of Agriculture, to re-issue the first Order for the compulsory destruction of affected bushes everywhere, and over and above that, to grant compensation from Treasury funds. A strong case was made out by the men of Kent, but Lord Carrington, of course, had only sympathy to offer; money he could not. "If the means already adopted," said he, "should prove, during the course of the summer, to have been ineffectual to stop the disease from spreading in the various affected counties, the Board would be prepared to take more drastic steps." Here the matter rests.

Forestry at the "Royal."

The section devoted to forestry is likely to prove a most interesting feature of the Royal Agricultural Society's Show at Newcastle. It has again been decided to offer for competition special medals in silver and bronze in upwards of a dozen different sections, including classes for specimen boards of various sorts of timber, specimens showing the damage done by insect pests, the comparative quality of timber grown on different soils, and the respective ages at which it reaches marketable size, the beneficial effects of pruning when well done, and the injurious effects when badly done. There will also be classes for different descriptions of gates for farm or estate use. Plots of open ground space, adjoining the exhibition building, will be allotted to firms of nurserymen for the exhibition of forest trees and shrubs, and owners of forests and woodlands and others interested are invited to send specimens, photographs, &c., for exhibition only. The special medals offered for competition bear on one side the die of the Royal Agricultural Society of England, and on the other side that of the Royal English Arboricultural Society, the exhibition being held under the joint organisation of the two bodies. The exhibits in the competitive classes will be judged by Mr. A. C. Forbes, of the Irish Department of Agriculture, Dublin. Forms of entry may be obtained on application to Thomas M'Row, secretary, Royal Agricultural Society, 16, Bedford Square, London, W.C.

Hardy Plant Notes.

Pyrethrums.

Though the cultivation of these beautiful flowers may be termed very simple, yet few border plants pay better for liberal treatment. They will do fairly well in partial shade, but one often sees them presenting a sorry spectacle in dry and barren places near the roots of trees. They require no particular kind of soil so long as it is good of its kind, that is, in good heart. But the soil that suits them best is undoubtedly a deeply-dug, well-drained, rich loam, and we must not expect to get the finest exhibition blooms, and these in great abundance, unless such a soil has been well enriched with good, rotted manure. This should be supplemented by an application of a mulch in May, and, when April and May are very dry, one good soaking when the buds are beginning to open.

Slugs need a deal of looking after, as they often gnaw off the shoots just as they are appearing above the ground, and so spoil the first crop of flowers before anything is noticed. To forestall and prevent this, the crowns should be dusted over with coal ashes now and then from October to April, with the addition of a little soot between the plants, remembering that it is a dangerous thing to put the latter on or over the crowns.

As regards the position in the garden in which Pyrethrums should be planted, much must depend upon the purpose for which they are grown—whether it is for colour effect in the general scheme of the garden, or for the production of fine specimen flowers. For the production of florists' flowers the soil must be specially prepared for them, either on beds or borders, and the plants kept out of the reach of the hungry roots of trees, shrubs, or coarser-growing perennials. Pyrethrums soon deteriorate, both in the size and in the abundance of the blossoms, if left too long without replanting and dividing, the length of time after which this should be done depending upon the favourableness or otherwise of their location, and the right time to do it can only be known by observation of the growth of the plants and of the character of the flowers, the first sign of deterioration being taken as the signal for lifting and dividing, with a change or renovation of soil. There is a difference of opinion as to which is the best time of the year for this operation, some advocating the early spring, and others when the plants have finished flowering, that is, when the first and main crop of the flowers is over. Spring transplanting and dividing, unless it is done very carefully, and the conditions subsequently are very favourable, will lessen the season's flowering considerably, while if done in the summer, a good deal of attention is necessary afterwards if the weather is dry and hot. Each method has something to recommend it, as with the similarly different systems of propagation of the Primrose and Polyanthus family.

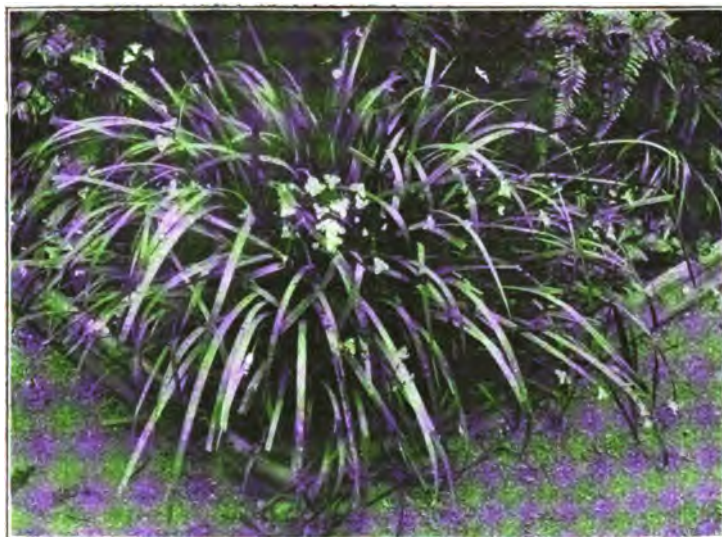
If one wishes to propagate a certain root, and that without regard to the loss of flower in the following season, then the plants may be taken up in early April and literally pulled to pieces, every little piece with a root attached being put in a small pot and set in a cold frame until it becomes established, in the meantime giving it a fair amount of air and only just enough water to keep it from unduly flagging. When rooted the plants can be put out in a nursery bed, somewhat in the shade, and planted in their permanent positions in the autumn or spring, preferably the latter, if slugs are at all troublesome.

Cuttings may be made of the side shoots which are formed in the latter part of the summer, and treated in the way described above. When, however, one has enough plants, at least of the sorts that are grown, and the desire is simply to give them a fresh start, they should be taken up either in early April or in the autumn, and, failing a fresh place for them, the soil should be dug deeply and well manured, and the clumps replanted, any which are unduly large being cut in two or more pieces with a cold chisel to avoid knocking the earth off the roots more completely than is necessary.

Seed may be obtained of the single forms, and also nominally of the double, though a large proportion of the latter come single and, generally, not such good singles as those derived from the seed of single flowers. The seed should be sown in March, and the seedlings pricked out in pans or boxes of good sandy compost, afterwards being planted out on a nursery bed of good light soil in partial shade. It is as well to leave them there to flower for a season, so that those of poor varieties may be weeded out. The following autumn or spring they may be planted in their permanent positions, and should then be nice plants, which will stand a better chance in the mixed borders and miscellaneous places generally than they would have done before they had flowered.

Though Pyrethrums are spoken of as late spring and early summer flowers, the season of flowering may be prolonged much beyond these limits, flowering on and off throughout the summer and into the autumn if well mulched and not allowed to get too dry. If all the flowering stems are cleared right away at the end of June, and the plants given a good soaking, with the addition of a little artificial manure washed in, the plants will start into vigorous growth again, and will often produce quite a good second crop of blossom in the late summer and early autumn.

Varieties are practically innumerable. One firm of nurserymen professes to have grown over 200 varieties some years ago for the purpose of selecting the best. It may be as well to mention a half-dozen or so which are generally reckoned among the very best. Of the whites one of the finest is undoubtedly Aphrodite, and some think it the finest of all the Pyrethrums. The flowers are large and of the purest white, the delicate quill-like character of the florets, except the outer guard petals, not being surpassed by any. As a contrast to this, Melton is an intense



Libertia paniculata.

bright crimson-scarlet, bright, though of a deep colour. Between these two is Florentine, bluish white, very large and fine. Pericles is one of the few yellows, a really golden yellow, with creamy pink guard petals. All these are doubles, and all have received that hall mark of florists' flowers—the first class certificate of the Royal Horticultural Society. To these might be added King Oscar, a gorgeous scarlet, and the old Ne Plus Ultra, a bluish white. Of the singles, the finest is that brilliant scarlet, James Kelway. Many of the so-called crimsons, roses, and pinks, both amongst the singles and the doubles, have a good deal of magenta in their composition, and should not be chosen from a catalogue unless the intending purchaser has previously seen the actual flowers, or disappointment will result.—A. PETERS.

Libertia paniculata.

This graceful Iridaceous Australian plant is half hardy, but generally speaking, its proper place is in a greenhouse or large conservatory. Naturally, too, the plants thrive better when planted out in a well-made bed or border of fairly solid loam. It is in flower at this season, and while the linear, grassy foliage is both pretty and attractive, remaining evergreen, the long graceful panicles of dazzling white starry flowers, half to three-quarters of an inch in breadth, are also exceedingly beautiful. The plant is of easy cultivation, flowers for a long while, readily responds to generous treatment, and deserves to be more widely known and grown.—H.



Japanese Varieties for Exhibition.

The plants should now be potted fairly firmly. I do not believe in very hard ramming of the soil, the blooms of plants so treated never producing those long drooping petals so much admired, but more often give very tight flowers, which as a rule never open or finish well. I never use leaf soil. The soil I use is of a light open nature, and it is, I think, better without it, though soils of a heavier or clayey kind may perhaps be better with a little of it. But on no account would I advise the use of leaf soil with a sour or musty smell; it is certain to be harmful to the roots. At this stage the plants should be kept on a bench near the glass in a heated greenhouse facing east, the temperature being kept from 50deg to 55deg, and as the days lengthen the plants begin to grow much stronger. Early in March I put the plants into 5in pots, using slightly richer soil, say six parts of the turfy loam and one part of rotten manure, with just a sprinkling of sand, bonemeal, old mortar rubbish, and a little "Valsang." When the plants have rooted well into this I transfer them to frames where frost can be kept out. These frames have 4in brick sides, face the south, and have a single 3in hot water pipe running all round, so that a little heat can be turned on if frost threatens. I must again advise giving plenty of room to the plants, and, what is most important, never to water them unless they require it. When well rooted an occasional application of a little soot and water greatly improves them. I also occasionally spray them with it very weak; it helps to keep fly in check and the plants in good condition.

During March stopping of some of the varieties must be seen to. Stopping and timing the plants at the proper dates in order to get blooms in time for the shows it is intended to exhibit them at is certainly very interesting, although a complex part of "Mum" growing. Seasons and districts vary so much that hard and fast rules will not work. Plants stopped at a certain date may give excellent results one year and next year be a complete failure. My plan has been when growing several plants of one variety to stop at several slightly different dates. One is then almost certain to get some blooms in perfection at the desired time. Of course, a badly timed bud is useless, and all the work spent on the plant is lost, so each season careful notes of dates and results should be taken, so that the best time to stop in a given district may be ascertained. The following are the usual times at which I stop what, in my opinion, are the best twelve varieties I grow; but although the times may suit our district, they are far too early for those farther south and too late for northern growers.

1. F. S. VALLIS.—Some are stopped early in and at the middle of March, and second crown buds taken; others are rooted in the middle of January, and first crown buds taken.
2. MRS. F. W. VALLIS.—Some are grown naturally, and first crown buds taken; others are stopped at the end of March, and second crown buds taken.
3. MRS. W. KNOX.—Grown naturally, and second crown buds taken.
4. J. H. SILSBURY.—Some grown naturally, and second crown buds taken; others stopped at the middle of April.
5. MARQUISE V. VENOSTA OR WHITE VENOSTA.—Stopped early in and at the middle of March.
6. W. A. ETHERINGTON.—Some grown naturally, and first crown buds taken; others stopped early in March for second crowns.
7. BESSIE GODFREY.—Grown naturally if break shows about May 25th; if not, stopped about that date.
8. MRS. GEORGE MILEHAM.—Some grown naturally; others stopped early in February, and first crown buds taken.
9. MRS. A. T. MILLAR.—Stopped early in and at the middle of April for second crowns.
10. REGINALD VALLIS.—Some grown naturally for first crowns; others stopped in March for second crowns.
11. MAGNIFICENT.—Grown naturally for second crown buds. Late buds are the best.
12. PRESIDENT VIGER.—Stopped at middle and end of April, and second crown buds taken.

As soon as April arrives repotting into 6in or 7in pots should be commenced. By this time, too, more air can be given, and on warm days the lights

can be entirely removed from the frames, which will gradually harden off the plants, but it must be done with discretion, for on no account must cold, cutting winds be allowed to blow through them. It is much better to allow the temperature to rise a few degrees. I advise everyone to use a thermometer, and never to omit to look at it before putting on air. Sometimes, though the sun is high, and it feels warm, a keen wind may be blowing, which will soon cripple the plants, and if they get checked in growth they may as well be given up for the season.

Let us return to the potting. For this shift I make up the following compost:—Eight parts turf; two parts rotten manure; one part sand; half part broken oyster shell; half part old mortar rubbish; half part "Valsang," to which should be added a sprinkling of good wood ashes, and the compost should stand a week before using. On no account should lime which is at all fresh be used, nor should too much wood ashes be used, as they set free the nitrogen in the compost all at once, and an action is set up which burns the roots.

After carefully potting the plants, return them to the frames, and keep them rather close and well syringed occasionally for a few days. Any plants which are of a weakly growth should have a small stake put to them, and be carefully tied up; but if the plants have had plenty of room few will require staking. I pot a little firmer each time, working in the soil round the old ball with my fingers or a small piece of wood.

Early in May preparation should be made for the final potting. The pots should be washed and crocked some time before starting to pot. It is most important that the crocking be done well. About 3in of clean crocks should be used, and above this a sprinkling of ½in bones that have been well charred should be placed. Bones should never be used in a raw state, as they injure the roots instead of assisting them. Over the bones I place a little fresh cut turf, grass side downwards, which gives good drainage and keeps the soil out of the crocks, and on the top of the turf I sprinkle a little "Valsang." The heap of turf stacked with manure should have been chopped down at the end of April, and a 5in pot of "Valsang," and the same amount of good bonemeal, added to every barrowful, with a good sprinkling of sand, old mortar, oyster shell, and wood ashes added. This compost wants plenty of mixing and turning, and the oftener this is done before using the better. The sizes of pots I use are 11in and 12in.

About the middle of May, if the weather is favourable, I start potting. This must be done very carefully, and each plant should have a good bamboo stake to which it should be carefully tied. After this, the final potting, the plants should be stood on boards in a sheltered place, with a wooden framework overhead, so that they may be covered in case of frost or heavy rain. I find this to be essential, as here we often get sharp frosts at the end of May. After being potted the plants should receive no water for about a week, but they should be well watered some two or three hours before the potting is taken in hand. If this is done it is surprising how long they will go afterwards without water; in fact, I allow my plants to flag before giving any. If water is given indiscriminately the enriched soil gets sour before the roots get into it, and the leaves begin to turn yellow. The plants should, therefore, be kept on the dry side, but they should receive plenty of syringing. This I do three or four times a day just after potting, and it works wonders in keeping them healthy.

About the first week in June, when safe from frost, the plants should be put out into their summer quarters, where they will remain until September. For tying the plants to I use strained wires, permanently fixed in lines 6ft apart running



A Circle of Crocuses.

north and south. I place the plants 2ft apart, as I believe in their having plenty of room, and the more the wind blows through amongst them the better. At Bromham we are some 300ft above sea level, and exposed to strong westerly winds; yet after a windy season I have had my best results, although many shoots have been lost through the gales. Careful and frequent tying, however, will generally obviate this. For setting the pots upon I use a special corrugated tile, so made that water can drain freely away, and it also allows of aeration of the soil through the bottom of the pot, which I consider an advantage. On no account should the pots be set on boards, as in wet seasons the excess of water has great difficulty in getting away. On each side of the plants I tie a bamboo to the wires, and train the two outer shoots to these; the middle shoot is tied to the stake in the pot, which is now also tied to the wires. I do not believe in looping the side shoots to the middle one with raffia; treated thus the wood never ripens, and unless ripe wood is got losses by damping later on will be heavy. About the middle of June the plants should be gone over in order to see that they are breaking where necessary for second crown buds, and from now onwards they should be kept well tied in, else winds will play havoc with the tender shoots.

Early in July I give a slight top-dressing with the same kind of soil as was used for potting, with about twice as much "Valsang" as was used before, and it must be well mixed for at least a week before using. This top-dressing I repeat at the end of July, and again at the end of August. Plants generally require plenty of water during July and August. I usually go through mine three times daily, and give water where it is needed; but water should never be given unless the pot "rings" when tapped with the knuckles; more harm is done by over watering than by under watering. In August buds will have to be taken, and I have usually found those taken from the 7th to the end of the month to give fine flowers. Do not be in a hurry to pinch out shoots, especially if buds are showing a little too early; let them grow for a week or so, as it tends to keep the buds later. When they are removed too quickly all the sap is sent to the buds, causing them to become black or hard, or to give "hen and chicken" buds. I go through my plants and take out a shoot daily, which causes the buds to swell more gradually. When the buds are just showing, if the weather is very hot, the plants should be syringed every afternoon. Unless the weather is very wet, I syringe mine every day during August.

Now is the time when plants require liquid feeding. This should not be given too strong, however; weak and often is the better way to give it. I generally start in the first week of August, and if the plants have been well looked after the pots will be full of roots. The rule I follow is to water with "Valsol" for three days, with liquid manure made from fresh horse or cow droppings for three days, and with clear water only for three days. After the plants are housed liquid manure should be used more sparingly.

Housing of the plants should commence about September 16. I have always started about that date, no matter what the weather happened to be. In this district it is unsafe to be out later, as sharp frosts often occur soon after then. The house I prefer is a good lofty one, three-quarters span or full span, from 20ft to 30ft wide, and with ventilators on both sides top and bottom. I do not close any of the ventilators either by night or day for the first few weeks, as the more air the plants get now the better. The house should be thoroughly clean. I cover the floor entirely over with 3in or 4in of clean wheat straw to set the pots on; it keeps down dust, which has such a knack of showing on the blooms, and, I believe, keeps the house drier. After housing the plants they must be watered with great care. I allow them to become fairly dry before I give water. One can now soon see if the plants are going on well, as after about a week the roots will begin working through the surface of the soil. As the weather becomes colder and buds begin to expand the ventilation will require to be gradually reduced, especially on the sides of the house. Heat should now be given to keep up a temperature of from 50deg to 55deg. I find the blooms expand well at 55deg, but with plenty of air on; on no account must the house be kept close and steamy, or damping will be certain to result.

Watching the blooms expand is, although the most anxious, certainly the most delightful phase of Chrysanthemum culture. Care must now be taken to keep a sharp look-out for insects. Every night the flowers should be examined with a light, for the destructive earwig is then on the warpath, and in one night may entirely ruin a flower. Splendid traps for these insects may be made by using about 5in lengths of dry wild Parsley stem hung from the plants by pieces of fine wire. Both before and after housing, caterpillars are very persistent in devouring the young shoots, buds, and flowers, but they can



Carpeting of Chionodoxas in a Rose bed.

easily be found by searching the under sides of the leaves. The leaf-mining maggot of the Celery fly is very fond of Chrysanthemum leaves, and it causes unsightly patches on them, but it can be readily stopped by pressing the affected part of the leaf. The most troublesome insect I have had to deal with is a small green fly, about the size of a house fly. These poison the shoots and buds, and cause them to droop as if dry, though they appear to get over it after a day or two; but nearly always the bud gets deformed or turns black. Careful watching is the only remedy I know of, but as the insect appears to know of the approach of danger it is difficult to secure. I have lost most shoots by them in a dry season. Green and black flies are also troublesome, but they can be destroyed by fumigating the plants when indoors, and when out of doors by using tobacco powder. I find that syringing the plants with soot water also checks them. Thrip I have never been much troubled with, but they require to be kept in check. I always fumigate my plants at intervals after housing, and find nothing better than Richard's XL-All for the purpose.

As to shading, as soon as the petals begin to open and droop I whiten the house over with whiting and paste. This prevents a hot sun damping or injuring the colour of the flowers.—F. S. VALLIS (in the Transactions of the Scottish Horticultural Association). (To be continued.)

Chionodoxas and Crocuses.

Several illustrations of the decorative present-day use of Crocuses and other spring flowering subjects have recently appeared in these pages; and again we furnish others. Both are scenes in the Royal Gardens at Kew, the one being the circular bed of about 4ft breadth, encompassing a vase or tazza at the junction of cross pathways. This circle terminates the Main Walk at its westward end, next the ornamental pond. It is devoted to dwarf "bulbous" plants in the spring, as Crocuses or Anemones, and is filled with carpet-bedding subjects afterwards. The other view is equally pretty and effective. It shows a carpeting of Chionodoxa Luciliae (light blue flowers with white centre) under hybrid perpetual Roses, the variety of Rose being Frau Karl Druschki. This feature of bulbous carpeting is being gradually extended at Kew, where the naturalisation of Spring flowers was earliest carried out, and has always been practised in newer, fresher ways. These Chionodoxas are well established, just like the Bluebells (*Scilla nutans*) in certain woodlands, and during March and April they greatly assist in enlivening that part of the grounds near and around them. The plants seed freely, and the bed, being of rich soil, the seedlings are coming up wholesale. It might be thought that the presence of so many of them would result in starving the Roses. But that is not so. When the Roses break into growth and form leaves, the Chionodoxas are past, and then a mulching with very rich and very well rotted dung is evenly spread over the ground, and the Roses grow apace. A photograph of this same bed when the Roses were all above was taken by us last summer, and appeared in the *Journal*. Readers could judge by it, showing the bed full of blooms as it did, whether the Roses suffered.—S. E.

Mixed Gardening.

We read at times a considerable amount of matter in connection with what many writers are pleased to term "mixed farming." Everyone connected with the land is expected to understand what is meant by the expression "mixed farming"; but we can scarcely look upon it as a happy mean of naming an industry which appears to be extending, and continually threatens to become more complicated. There may be readers who will consider the title of our efforts here as scarcely more happy in its application than that alluded to above. They will not be contradicted, though gardening in its many phases, as found in its private and commercial aspects, is usually more or less a mixture.

An invitation offered about twelve months ago was, after some consideration, accepted. "If you can arrange to meet me by five o'clock, I'll drive you to —," naming a well-known fruit-growing centre. "Put on the heaviest coat you have, and be punctual." We were first at the meeting place, so that last injunction was unnecessary. The waiting was not a long one, however, and presently our friend and his car came swiftly up. Quickly boarding, away we went, through what might almost be described as groves of fruit trees; the white-washed stems of the Plums rising ghost-like from the luxuriant beds of Lettuces and Cabbages.

Fast travelling allows but a glimpse at the plots of land as we pass, but enough can be seen on every hand for proof of high cultivation and the prosperity of this form of allotment gardening. Allotments so called (really small holdings) of from two to ten acres, though one should think five would be an average. "These people manage to take a lot of produce off their land," says our companion, as the car rushes merrily along. "Yes," we answer; "no land in the kingdom produces more, if as much, per acre as in this district." We are well within the truth, we believe, in such a remark.

Nowhere else have we noticed greater industry and activity displayed on the land; nowhere else have we noticed greater productiveness. The land, by intelligent feeding and tillage, is maintained in the highest state of fertility. Some of the best in the neighbourhood owes a great part of its excellence to the efforts of other generations. Generations who have laboured and prospered and left the land for those of to-day, many of whom are well worthy to follow in the steps of those who have gone before.

These people are almost without exception tenants, and not owners of the land they hold. But fixity of tenure enables them to carry out improvements without fear of loss of compensation. Many men have taken rough land, and working and cleaning it, chiefly in their spare time, have been enabled to gradually plant with Asparagus or fruit trees, or both, and thus have become in numbers their own masters, and holders of very valuable tenants' rights. For the best pieces of planted land in favoured spots, it is not unusual for the incoming tenant to pay a hundred pounds a acre for the right of entry. Capital to some extent is, of course, necessary.

The value of such holdings once grasped, it is not difficult to understand something of the underlying principles of their management. A badly kept allotment is the exception. If neglect in a solitary case be carried too far, the landlord or his agent may step in and insist upon valuation and a new tenant. We have not yet heard of such a case, and believe such an occurrence to be very rare. The indefinite extension of such holdings is not here advocated. Few districts are so happily blest in one or two ways as the one of which we write. Local markets are excellent; railway facilities are such as are seldom met with, and the situation of the land, together with the natural fertility of the soil when well worked, make a combination of favourable contributing causes of welfare which cannot frequently be met. Taking the above into consideration, it would certainly not be wise to assert that the same rules of tenure or the same methods of culture would be found satisfactory, if extended without limit, to other localities. Meanwhile, most of the dwellers here deservedly prosper, and are deserving the best wishes of all who are interested in the great land question.

It must not be thought that our friend has been forgotten. We pass quickly from the more thickly-planted ground, and presently come to that of a more open nature. Grass and corn here alternate with patches of Strawberries, Cabbages, or Peas, an isolated plot of Plums only appearing here and there. We notice one grower has made a commencement with a few houses for the growth of Tomatoes, early Strawberries, and so on, but so far very few of the cultivators have cared to put much money into glass. Presently we shall pass a very large market establishment where many ranges are visible, and where much excellent produce is raised for market. Before long, too, we pass into another county, and here it is we come to another phase of our subject, which may to some extent justify our title. "Soon be there now," is the information offered by the driver, as we rush past a deeply embowered

village on the hillside, and sure enough the car turns quickly through a lodge entrance, and we are speeding up a well-kept drive.

Who could fail in having old memories stirred in viewing the beauty of this grand desmeane, as well-ordered shrubbery and plantation and wide expanses of park are in turn swiftly brought to sight? Our companion is busy with his steering, and does not disturb the current of thought which revives recollections of many a day spent in sweeping and weeding amongst the labourers on a similar drive away in the North. But almost before there is time for looking back to older times, we are placed up before a magnificent building, and are at the foot of a fine flight of steps leading to the entrance.

We think again of climbing similar steps to an equally noble entrance with heavy loads of plants in the early hours of days long past. Being given twenty minutes to wander round the beautiful grounds, whilst a business appointment is kept by our busy friend, we quickly leave the terraced parterre and hurry down a bank of grand Oaks and Chestnuts to the path bordering the wide lake. Everything is in the best of keeping; the grass mown, verges trimmed, not a weed to be seen on the bright gravel walks, and we are in the midst of a quite distinct form of gardening from that through which we have so rapidly come.

A tall keeper, with gun on shoulder, eyes us rather keenly, with perhaps a thought of his pheasants; but apparently satisfied leaves the unknown intruder to his rambles, which bring him to many pleasing spots, where are growing many old favourites, from which the birds quietly run as they are approached. Many a giant tree do we note at whose feet may be found perhaps a number of Primroses in different colours, or in many cases various Narcissi have been planted; but with all our admiration and pleasure in a few minutes escape from the commercial side of horticulture, we note a couple of beds planted at the margin of opposite sides of the lake to "match." Filled with variegated Acers and similar subjects too readily remembered in connection with suburban villadom as being out of place and altogether undesirable in such surroundings. However, the "match" is but a small defect, and we continue to explore until it is time to once more board our now lighted vehicle.

Space fails to tell of numberless trees and plants noted at the time. We nearly made an incursion into the kitchen garden, but seeing the roofs of houses over a wall, we felt in view of past days of sweltering in tropic heat and swampy moisture, perhaps a sight of these could without difficulty be denied. Of the return journey little remains to be told. Our friend seemed in high good humour at the successful termination of the business which had caused the journey, and the time seemed to be very short ere we were once more passing through those well-ordered plantations to which the earlier portion of our article refers. Where, as some lady writer breaking into poetry in a daily paper some months ago declares, "even the poor Cabbages are made to stand in line."

The car stops; a quick jump; Good-night! and we are soon over the two or three fields which separate us from home; where the light and warmth are a pleasant welcome after the dark and drizzle of a long cold drive. We seem to have been here but a few minutes, when there is a ring at the telephone. Halloa! Are you there? Got home all right? Yes, thanks. Good night! It is our friend six miles away, with his usual solicitude for those who serve him, anxious to know if those dark fields have been safely negotiated. What has grown out of the business arrangements made upon that occasion does not bear directly upon gardening, however mixed, and would scarcely appeal to readers.—J. W.

A Fruit-covered Pergola.

While visiting the nurseries of Messrs. Richard Smith and Co. at Worcester recently, we were shown a cheap and yet efficient pergola for fruit. An illustration, kindly lent by Messrs. R. Smith, of this, their well-advertised "Revolution in Fruit Growing" is presented. "In a kitchen garden of an acre," they write, "we made four pergolas similar to this one. Their total length was 250 yards, and the 1,000 Apple, Pear, and Plum trees which were planted take up but little room. The posts are of Spruce, 2in square, 6ft above ground, and 18in below; semi-circular iron arches (9ft at apex from ground) are screwed to the posts, with horizontal wires along top and sides, as shown. There is no need to have the arches nearer than 12ft apart. The width of pergola and path is 6ft. Trees one year, two years, or three years 'from the bud' can be planted, according to the amount it is desired to spend. The trees should be kept closely spurred. It is advisable to plant trees in pairs of the same sort opposite to each other, and to graft the ends together when they meet at the top of the arch. The trees should be 1½ft apart, and it is manifest that they can be kept clean, pruned, &c., at a minimum of trouble."



A Fruit-covered Pergola.



"The Missus."

"A. C." is gratified by this charming writer's allusion to him. In the flower he is easily "spotted"; the colours of his name-Rose being very delicate. Dean Hole once wrote to him, "My dear brother in the Faith, and in the Flower"; so probably he is also otherwise recognised. He admits he was very young when he showed a Paul Neron. In his experience Rose showing needs a long apprenticeship. He would like to know "The Missus's" idea of an ideal twelve box. Her clever chatty article is excellent reading, and delightfully *ex cathedra*. He would suggest Caroline Testout as quite the present queen of pink Roses, so very good all round; and Frau Karl Druschki, whom she does not name, as the queen of the whites. Perhaps a very good guide in buying is, was it a medal Rose?—(REV.) A. C.

Mummy Peas.

A lady gardener friend has sent me some seed Peas, said to have been taken out of the wrappings of an Egyptian mummy, but it is not stated when they were put there. We have all heard the story of mummy Wheat of centuries ago growing when planted, but has that ever been proved to be correct? My impression is that they would not retain their vitality beyond eight or ten years at most. I should be glad to have your opinion.—T. E.

[The subject of the longevity of seeds is always cropping up. Nothing definite has been proved. Deeply buried seeds, however, such as those of Charlock or stinging Nettles, have been known to germinate after many years, when brought to the surface again. As to mummy Wheat and mummy Peas, cases are upon record where it has been known that the Arabs who show the mummies to tourists, have themselves placed the seeds within the wrappings. The unsuspecting tourist may inquire if any grains of Wheat have ever been found, and in view of a probable "tip," the Arab assures his client that such has been the case, and if he searched carefully there and then, he might be able to find another. And so the trade goes on.—ED.]

Sheffield Horticultural Society.

I see in your issue of April 2, page 317, a report under the above heading which I feel it my duty to take exception to, for I am convinced the writer is not aware of the whole facts of the case, or otherwise an intentional injustice is being done, not only to the committee, but to the whole membership of the late Sheffield Floral Horticultural Society. I quite agree with the writer when he says it is a matter of regret that such a society should have to come to an end; but to say that it is the result of apathy, or want of "go," on the part of the committee, I cannot agree with him. As a member of that society, and for some years of its committee, I would like to point out a few of its struggles for some six or seven years. I have been connected with the society for that period; and only on one occasion were we enabled to pay our way, and not have to make a special appeal to the members and committee to meet our deficit. I have always realised that the efforts of the late secretary were responsible for the society's success from an exhibition point of view, and am quite aware that for two years he wished to resign. At the same time pressure was brought to bear upon members of the committee who wished to resign, and would have done so, only for the fact they did not wish to see the society fail. I am glad to say the committee worked very hard, with the result that the whole of the deficit was paid off, and to those who gave help they were, and are, very grateful.

With regard to the opportunities offered for a spring show, which the Chrysanthemum Society were expected to accept, as secretary to that society I can speak fully upon the matter. At the outset I would say that my committee are alive to Sheffield's interest in horticulture, and will, I feel sure, do all in their power to place the city in the front in such matters, and I think they have already done something in that direction. We have at various times suffered severe losses in financial matters even in this society, a society that has made a name all over the country. I think the committee are very wise indeed in fully considering everything before plunging themselves into a matter that might prove a very serious financial difficulty, even at the risk of someone saying, "Apathy is here again apparent." I can assure the writer that we shall, when

the time is appropriate, endeavour to keep Sheffield in the front, even to running a spring show.

In conclusion, I would say I have a much better opinion of my committee than the writer of the article seems to think Mr. Lewendon had of his, and I feel sure that should we be faced by financial losses or any other difficulties, we shall be found not to be lukewarm over the matter, but each one will endeavour to do his best to further the advancement of horticulture in Sheffield.—CHAS. COOK, Secretary, Sheffield Chrysanthemum Society.

The Village and the Landlord.

I thought by this time everyone had got used to the words Tariff Reform, but it seems that in Leeds, if nowhere else, there is still one individual at least who appears to regard them as he would some hideous monster; but we in Devonshire have quite got over the surfeit we had a little over two years ago, and I can conscientiously say that the great majority of men hereabouts, of whatever politics, agree that there is little to lose and much to gain by Tariff Reform as at present advocated, as far as farming and market gardening is concerned. It is all very well, of course, for a man to say that he has made a study of a certain industry or trade, and to advance theories concerning it; but it is the men who are actively engaged in those pursuits who feel where the shoe pinches. We were assured years ago by the champions of the so-called Free Trade that not an acre of land would go out of cultivation. We all know, if we are honest enough to admit it, how false that prophecy has proved to be. I have no statistics here to quote from, but I think none are needed to show us that at the time of the repeal of the Corn Laws farming was flourishing, and the country well populated. Now, alas! farming is a languishing industry, and a large percentage of the rural population has migrated to the towns; therefore I say that as far as agriculture or horticulture is concerned, Tariff Reform should prove a real blessing instead of only a "fatuous argument." With regard to the red herring Mr. Greenwood speaks of, I think we can easily dispose of it, seeing that we have successfully negotiated whole shoals of them of late; but why make such a morbid suggestion about "axes to grind"? Surely the working classes of this country know by now who their real friends are, and I think I know them well enough to say that they know the champion of the Workmen's Compensation Act too well to accuse him of any selfish motives in connection with Tariff Reform.—E. LAWRENCE.

I should like to make a correction in my statement re the Navy. What I wished to say was that the Navy is managed by the community for the benefit of the community, and that the production of food, being of vital importance, should be placed on a more stable basis than it is at present.—A. GREENWOOD.

Tariff Reform.

This great and peculiarly complicated problem is undoubtedly one of the questions of the hour upon which everyone should ponder deeply, because it is a matter of vital importance to almost every individual in Britain. It is, therefore, not a matter for surprise that the *Journal of Horticulture* should have included in its Spring Number a weighty leader on Tariff Reform. The writer advanced, with considerable impartiality, arguments in favour of, as well as against, the proposed change in our fiscal system. Wisely it was pointed out that the problems involved can only be solved by a practical test.

The matter has been so frequently debated in the political arena, that probably every *Journal* reader has read yards of printed matter containing the arguments put forward by the two contending parties, but this is one of those matters which cannot be decided by mere words or statistics. It is by no means convincing to be told that Britain has made wonderful strides commercially by adopting a policy of one-sided Free Trade; or that under the old system of Protection the condition of the working classes was deplorable. This, I say, is not convincing, because we are told by the other side that other nations have made infinitely greater strides in proportion to their volume of trade when Cobden's policy was inaugurated. Britain had then no serious competition; now she has keen rivals. Again, the hardships of the poor in regard to the high price of food in the old protection days was largely the result of the imperfect methods of ocean transit, and the undeveloped conditions of our colonies and America in regard to food production. It may, therefore, reasonably be claimed that the wonderful developments which were in progress simultaneously would, even under Protection, have tended to materially decrease the price of food, without bringing prices to so low a level as to make crops unprofitable in this country, and thus drive hundreds of thousands from the land.

The problems connected with our fiscal policy are, however,

too vast and far-reaching to be dealt with fully in a horticultural paper, because they appear to effect different classes in different ways. Therefore, those who consider they have the most to gain by Tariff Reform support it; while others who see the greatest advantage in the direction of Free Trade strenuously oppose the reform of tariffs. Acting on these lines it is certainly wise for horticulturists to consider whether they would be beneficially or otherwise affected by the proposed reforms. Mr. G. Bunyard, who knows a great deal about the effect of foreign competition on the nursery and fruit-growing industries, speaks with no uncertain voice, and boldly advocates a ten per cent. import duty on all foreign horticultural produce, believing that it would not appreciably increase the cost to consumers, and would assist home production and benefit British workmen. Now this is exactly what horticulturists have a right to hope for, and if such benefits can be secured with only a slight extra cost to the consumer, we certainly ought to hold up both hands for Tariff Reform. But here, again, we come face to face with the practical question, Can it be done? The answer must be, We shall never know for certain until it has been put to a practical test; and then the results might be disappointing, and of benefit to no one. There is a risk about it, but enterprising nations and individuals must sometimes take risks if they are to achieve anything, just as the general who gives battle runs the risk of being beaten, but at the same time is determined to win. At any rate we are on safe ground in saying this, that if a ten per cent. duty would shut out the rubbishy Roses, shrubs, bulbs, and fruit trees often sold at auctions, our home nurserymen would certainly benefit; and consumers, or rather purchasers, would be saved a great deal of disappointment, for those cheap and nasty importations are as a rule of little use to anyone. Similar remarks might be applied to a great deal of the cheap foreign small fruits, which generally have but little flavour, and are sometimes unfit for food, yet tend to glut the markets, and hinder the sale of the better samples, and far more wholesome home-grown fruits.

Mr. W. J. Lobjoit, on page 264, put "the other side of the matter" in an attractive, if not convincing, manner. His main argument was that Tariff Reform would help the market gardener, if it tended to raise the prices of the commodities he produces, while not raising the prices of those things he must buy. It can scarcely be expected that any revision of our fiscal system would be quite so one-sided in its effect; but considering that the market gardener sells produce which, in the aggregate, is of far greater value than that of the commodities he buys (labour excepted), the advantage should be in his favour. Then, again, Mr. Lobjoit seems afraid that if the market gardener is relieved of the competition of importations of cheap fruit, flowers, and vegetables, the demand those cheap importations have created will diminish, and thus injure his market for disposing of his goods. Well, the probability is that although the shutting out of a great deal of foreign produce would at first tend to raise prices considerably, it would also greatly extend cultivation in this country, and prices would gradually come down again to a point at which they could be produced at a profit. Supply and demand would then regulate prices, without the disturbing element of foreign competition. Even then there would inevitably be overproduction at certain times, and scarcity at others, as such matters cannot be regulated automatically, and we depend to a great extent on the weather. Growers do not generally complain of difficulty in disposing of their produce when it is *dear*, but rather in times of glut, when it is *cheap*, as instanced by Mr. Lobjoit himself in regard to Cabbages last April, and Plums in September.

"Grower" and Mr. E. Molyneux have each written in favour of Tariff Reform, the former pointing out that although it is impossible to forecast the effect of slight protective duties, yet it is time something practical should be attempted. Mr. Molyneux is still more emphatic, and pertinently asks, "Why are not Englishmen encouraged to produce what is required by common sense methods?" In the earlier part of his communication he states that "there is no need to take a political view of the matter one way or the other." This, perhaps, indicates one of the most difficult points connected with the whole subject, because it is a matter in which horticulturists stand to gain or lose something, and, therefore, it at once becomes a matter of politics. Were it not for the political aspect of the matter, there would undoubtedly be a greater number of avowed Tariff Reformers, especially among horticulturists and agriculturists, because the bulk of evidence goes to show that protective duties would considerably benefit cultivators.

Matters, however, at present stand in this way:—Politicians strive with every conceivable art to catch votes; they offer the greatest plums to the most numerous class, the town workers, who far outnumber the rural workers, and as those from the towns are interested in getting food supplies as cheaply as possible, the interests of the rural worker have to be sacrificed for the sake of the more numerous class. Thus horticulture and agriculture have suffered for years. They have had to produce

cheaply by paying low wages and gaining small profits, in order to add to the prosperity of the towns. The time has come when all those connected with rural pursuits should make themselves a united political force, and thus demand just remuneration for their labour and skill. The mere politician may fight shy of giving them help in this direction; what is wanted is a "great statesman."—H. D.

Plum Flowers and Frost.

In answer to your greatly esteemed correspondent, W. J. Murphy, Clonmel, it is to be feared he will find his Plum blossom thinned to some extent. The Victorias and Czars may possibly stand such weather as he describes without a great deal of damage. The dry atmosphere is all in their favour. We do not like to find the thermometer registering more than 5deg of frost with Plums in full flower, though we have known them stand more without much harm being done. On the other hand, we have seen the reproductive organs destroyed by cold east winds, without frost, of one or two varieties growing in



Pyrus floribunda.

WITH TREE-FERNS AND FOLIAGE PLANTS.

greatly exposed positions. If W. J. M. has an abundance of blossom, and nothing untoward has happened since he wrote his paragraph, he may reasonably hope for a fair and possibly a full crop of Plums. An old fruit grower—now retired with an independence—declared he never worried about his fruit crops until the first week in June, and then he always gave all his plantations a thorough examination for the purpose of an estimate of the crops. It would, perhaps, be well for others of us to refrain from worrying until some degree of certainty can be ascertained as to what fruit we can expect to gather. Pessimistic views uttered early in the season may be useful to sellers. We have also known the prospect of heavy crops have an undue influence in lowering prices, especially when accompanied by early selling.—J. W., Evesham.

Forced Ornamental Pyrus.

The little illustration herewith is a peep into a great conservatory where Bananas and tree-ferns, Auracarias, and Dracenas, huge Acacias, and bamboos flourish. In order to brighten the rather sombre cast of things beneath these taller-growing subjects, the system is adopted of introducing forced Azaleas mollis and feathered, half-standard or standard Pyruses beneath them. A group of three or four plants of *Pyrus floribunda*, each 8ft high and well bedecked with pink blossoms, is a very pleasing sight and addition.



A Useful Contrivance: A Fence on Wheels

Fence on Wheels.

The photograph above speaks for itself. It represents an iron fence set and fixed upon wheels. This contrivance has been in use for several years at Kew, where its utility is great, seeing that the gardeners can haul or push the fence from one place to another to block up an undesirable pathway, or beaten track across some portion of the lawns. Such a fence ought to commend itself particularly to park superintendents.

Trained Azaleas.

At some of the recent exhibitions of the Royal Horticultural Society, Messrs. Veitch and others have exhibited splendidly flowered specimens of pyramidally-trained Azaleas indica. Among the varieties that were shown the best appeared to be Mme. J. Vervaene, Dr. Moore, Empress of India, President Oswald de Kerchore, alba odorata, Herman Seidel, and Mme. Morreux. These may be regarded as among the finest of the present time. Of course, one ought not to overlook the exquisite Deutsche Perle, which is the one we figure. Keen exhibitors of these plants, we believe, pick off every flower as soon as the plants have served their purpose at the show, even though the flowers are perfectly fresh. They then assist the plants by applications of weak liquid manure or fertiliser, placing them on a comparatively cool and shaded bottom for the summer, but allowing them all the sun and light possible. We do not know that the practice of plunging these and similar plants among ashes, in an exposed place, is a good one. The ashes are hot, and actually extract the moisture from the pots, leaving the plants dry, and causing the plants to become subject to red spider. A cooler material is to be preferred.

Societies.

Royal Horticultural, April 14th.

What a splendidly varied show there was on Tuesday; with manifold Daffodil groups, displays of Carnations, Mr. Geo. Mount's Roses, and Mr. Alfred Rothschild's Hippeastrums. The best individual exhibits were undoubtedly Mr. Mount's Roses, filling a table, and Mr. Charles Dawson's table of seedling Narciss. Really, the varieties are now bewildering, and they have long been enchanting. There was a record attendance, we believe, of the Narcissus Committee. Only one certificate, however, was awarded by them.

Orchid Committee.

Owing to the committee signature book having mysteriously disappeared, we were unable to secure the names of members. There were only a few exhibits. Messrs. James Veitch and Sons, Ltd., Chelsea, contributed *Odontoglossums triumphans* and *crispum*, *Epidendrum elegantulum*, *Zygopetalum crinitum*, *Cattleya Schröderae* and *Ada aurantiaca*, a splendid and well-flowered specimen. Messrs. Hugh Low and Co., Bush Hill Park, Enfield, sent *Cattleya Schröderae* Mrs. G. A. Marshall, a

very pretty variety; also *Odontoglossum odoratum*, *O. triumphans*, and *O. crispum*, with *Dendrobium primulinum*, *Wardianum*, and *Wardianum ochroleucum*. (Silver Banksian medal.)

H. S. Goodson, Esq., Fairlawn, Putney, had several excellent *Phaiuses*, *Cymbidiums*, *Laelio-cattleya Mercia*, and *Brasso-cattleya Wagneri*. (Silver Flora medal.)

Mr. A. W. Jensen, Lindfield Nursery, Haywards Heath, as a new exhibitor, brought some excellent forms of *Odontoglossums* (Pancho strain), and good *Cattleyas Mendeli*. (Silver Banksian medal.)

Messrs. Cypher and Son, Cheltenham, staged a few particularly well-grown *Miltonias*, these being quite nice specimens in 6in pots. With these there were well selected *Odontoglossums*, *Cattleya intermedia alba*, and *Brasso-cattleya Thorntonii*, all clean and healthy. (Silver Banksian medal.)

M. Mertens, Mart St. Amand, Ghent, Belgium, were represented by a group of hybrid *Odontoglossums*.

Cultural commendations were accorded to Mr. J. Davis, gardener to J. Gurney Fowler, Esq., Glebelands, Woodford, for *Masdevallia Schröderiana*, whose flowers are purple and white; and to Mr. W. White, orchid grower to Sir Trevor Lawrence, Bart., for a noble plant, 4ft high, of *Dendrobium fimbriatum oculatum*.

Messrs. A. and J. McBean, Cooksbridge, had *Cattleyas Schröderae*, *Cypripedium Maudiae*, and *Odontoglossum crispum* varieties.

Fruit and Vegetable Committee.

Present: Mr. Geo. Bunyard (in the chair); with Messrs. Jos. Cheal, Alex. Dean, H. Parr, A. R. Allan, J. Davis, G. Reynolds, J. Jaques, Charles Foster, W. Barnes, J. Vert, J. McIndoe, Geo. Wythes, W. H. Divers, C. G. A. Nix, W. Poupart, and E. Beckett.

Dawes' Challenge Rhubarb, grown by the raiser, Mr. T. E. Dawes, The Nurseries, Syderstone, Norfolk, commanded everybody's attention. They were exceedingly fine, sending up a forest of stalks, each of good medium thickness and firm, 3ft long, and of a bright colour. It was highly excellent.

Mr. Joseph, Crawley, staged fruits of *Passiflora edulis*. Custard-apples, Loquats, and Melon Pears, each from Madeira. Mr. Divers sent a dish of Pear Marie Guisee, a good russety Pear, firm and well kept. A display of fourteen dishes of Apples came from Mr. W. A. Cook, gardener to Sir Edmund Loder, Bart., Leonardslee, Horsham.

Narcissus and Tulip Committee.

Present: Mr. H. B. May (in the chair); with Messrs. J. T. Bennett-Poë, Robt. Sydenham, John Pope, P. Rudolph Barr, Geo. Engleheart, Chas. Dawson, P. D. Williams, G. W. Leak, A. Wilson, J. D. Pearson, E. M. Crossfield, Arthur R. Goodwin, H. Dickson, W. W. Fowler, W. A. Milner, Joseph Jacob, F. Chapman, W. Poupart, Robt. W. Wallace, Walter T. Ware, Charles T. Digby, E. Bowles, G. Reuthe, W. Goldring, James Walker, A. D. Hall, and Chas. H. Curtis.

In the Barr's cup competition H. R. Darlington, Esq. (gardener, Mr. D. Bignell), Park House, Potters Bar, staged a rather weak display of thirty distinct varieties. This was the only exhibit in the competition, and no award was made.

Messrs. Pope and Son, King's Norton, near Birmingham, sent the big Daff. King's Norton, one of the largest of yellow trumpets. Lady Margaret Boscawen is also attractive, and others were Torch, Lucifer, Oriflamme, and Linda Pope.

Messrs. Barr and Sons, King Street, Covent Garden, had choice hardy plants, a good selection of Tulips, and an array of Narcissi. Of the Tulips we would name Clara Butt, Prof. Rawenshoff, La Candeur, Loveliness, Claude Gillott, and Margaret. Among the Daffodils there were several first-rate things, as Bedouin, a large incomp. with fine showy perianth and orange-red cup; Fireflame, after the style of C. J. Backhouse, but said to be of better constitution; Peter Barr. Loveliness, Horace, Hamlet (yellow ajax), White Lady, very dainty, with wavy segments of a milky white, and soft yellow cup; also the new Sunrise, a distinct variety with spreading perianth, creamy, the segments barred with yellow down the centre, and flattish red crown. Other pretty things were Amazon, Tangerine, Lucifer, Bridal Veil, Bullfinch, and King Alfred. (Silver Flora medal.)

Mr. Chas. Dawson, Rosemoran, Gulval, Penzance, confined himself largely to the incomp., Leeds's, Barri's, and such like. Charm is very fine, broad perianth and orange-red crown; Bedouin is also good; so is Ibis, a hybrid poeticus, charming. Bernardino is a grand incomp., with finely crimped orange cup. Pimpernel and Aspasie are soft and beautiful, and altogether good. (Gold medal.)

Sir Josslyn Gore-Booth, Bart., Lissadell, Sligo, sent a large group of the best sorts in commerce. Cresset is striking, also Firebrand; Mrs. R. Sydenham, a pale creamy trumpet; Mme.

de Graaff, White Queen, Ariadne, Lulworth, and Duchess of Westminster. (Silver-gilt Banksian medal.)

Messrs. R. and G. Cuthbert, Southgate, N., brought a table display of Tulips; and Messrs. Wm. Bull and Sons, Chelsea, had a small group of Daffodils. Messrs. J. Peed and Son, West Norwood, contributed Narcissi in pots; also alpine.

Messrs. Cartwright and Goodwin, Blakebrook, Kidderminster, had a choice selection, but rather too high poised at the back. We would name Lucifer, Beauty, Alice Knights, Gold Cup, Duke of Bedford, The Rising Sun, Argosy, Yellow Hammer, Seagull, and Marigold, which is said to bloom three weeks earlier than Gloria Mundi, which it resembles, and Aureole, a fine flat-crowned pale yellow, of high merit. (Silver-gilt Banksian medal.)

Mr. F. Herbert Chapman, Rye, brought Blackwell, Southern Star, King Alfred, Ariadne, White Queen, Duke of Bedford, triandrus pulchellus, and M. J. Berkley.

Messrs. Carter and Co., High Holborn, had a splendid bank of the new King Alfred Daff.

Messrs. Hogg and Robertson, Mary Street, Dublin, had a display which comprised Lucifer, King Alfred, Maggie May, Chaucer, Scarlettta, and many others. (Silver Flora medal.)

Miss F. W. Currey, Lismore, Ireland, also had a charming and extensive display, gaining a silver-gilt Flora medal. Narcissi in pots came from Messrs. Peed, of Norwood, who had also alpine plants. Messrs. Bath, Wisbech, sent Tulips.

Floral Committee.

Present: Mr. W. Marshall (in the chair); with Messrs. Geo. Paul, E. H. Jenkins, Chas. T. Drucry, W. A. Bilney, R. C. Notcutt, John Green, C. R. Fielder, J. F. McLeod, Wm. Howe, John Jennings, W. Bain, Chas. Dixon, Geo. Gordon, Arthur Turner, Herbert J. Cutbush, Chas. E. Pearson, Wm. Cuthbertson, Wm. J. James, Charles E. Shea, Edward Mawley, and R. C. Reginald Nevill.

Messrs. Bull and Sons, King's Road, Chelsea, S.W., contributed stove foliage plants; but, as usual, they were staged without any attempt at effectiveness. We are told that "if a thing is worth doing, it is worth doing well"; and if plants are worthy of being exhibited, surely they ought to be arranged to the best advantage, and pleasingly. Among the subjects were Asparagus Sprengeri variegata, Dracena Prince Manouk Bey—a good ruddy-leaved variety; also Filicium decipiens, somewhat resembling a Polypodium; Phoenix Roebeleni, Nidulariums, Eugenia myriophyllum, and Anthurium crystallinum.

Young Caladiums in very considerable variety came from Mr. Charles Turner, of Slough. The cold weather must have acted somewhat injuriously upon them. (Bronze Flora medal.)

Messrs. Carter, Page and Co., London Wall, staged Viola blooms from plants grown in pans in greenhouses. The best to be commended are Maggie Mott, deep lavender; Mrs.

Chichester, James Pulling, a very fine flower, after the style of Mrs. Chichester (white centre, purple edge), continuous bloomer, and of good habit; also J. B. Riding, Marchioness, Swan. Kitty Bell, Bronze King, and Molly Pope, all of which are described in the firm's hand-list.

Messrs. Cheal and Son, Crawley, contributed hardy plants—Arabis lucida alba, blue Primroses, Primula rosea, Androsace Chumbyi, Primula spectabilis, Anemone Robinsoni, Hutchinsia alpina, Omphalodes verna, Aubrietia Lilac Queen, and a nice selection of dwarf evergreen shrubs behind.

Mr. John Crook, The Avenue, Camberley, Surrey, who recently resigned his head-gardenship at Fords Abbey, Chard, after nineteen years, staged a collection of bunch Primroses (hybrid Polyanthus) in rich crimsons, good whites, and golden yellows, as well as in other colours. The habit of the plants, which are from a famous pedigree strain, is ideal; stocky, free-flowering, with good erect trusses of large and well-expanded flowers.

Mr. M. Prichard, Christchurch, brought together one of the most choice small collections of hardy plants, each subject being well worthy of notice. We would name the Primrose Evelyn Arkwright, and the double Pompadour, alba plena, French Grey, lilacina plena, and the crimson single Miss Massey. He also had Tulipa Greigi, Cardamine trifoliata, Ornithogalum nutans, and Iris bucharica, together with a goodly assortment of Aubrietias. (Silver Banksian medal.)

Messrs. Thos. S. Ware, Ltd., Feltham, Middlesex, were represented by dwarf choice alpine, and also by tree Carnations. Arabis aubrietoides, Aubrietias Hendersoni, deep blue; Dr. Mules, deeper violet; Fire King, and Mørheimi, lavender pink. They also had a new yellow variegated-leaved form of Saxifraga umbrosa. A collection of Primula Sieboldi vars. was included, comprising the blue, the white, and the magenta. Pale forms of Primula japonica were also noteworthy and very pretty. (Bronze Flora medal.)

Several fine clumps of hardy plants came from Messrs. Jackman, of Woking. Mertensia virginica was very fine; also Arnebia echinoides, Doronicum austriacum, and Erodium pelargonifolium.

Messrs. Cutbush and Son also contributed hardy plants and alpine in their usual cork-bark imitation rockery. All the best things were here. (Silver-gilt Flora medal.)

Messrs. H. B. May and Sons, The Nurseries, Upper Edmon-ton, sent May's strain of florists' Cineraria, sweet scented Pelargonium Clorinda, and several dwarf polyantha Roses—Princess Ena, mauve-pink; Mme. Levavasseur, and White Pet. A new form of Aspidium falcatum, named Mayi, with plumose foliage, was interesting. (Silver Flora medal.)

Carnations from Mr. C. F. Waters, Balcombe, and from Messrs. Cutbush were each attractive; the latter also showing forced Azaleas and other ornamental shrubs, filling the length of one table. (Bronze Flora medal.)

Messrs. Benj. R. Cant and Sons, Colchester, staged a white sport from Dorothy Perkins Rose—said to be in every way highly meritorious.

Messrs. Hugh Low and Co., Bush Hill Park, Enfield, again stuck to Carnations, which they showed in extremely good condition, Winsor, Aristocrat, White Perfection, Red Lawson, Oriflamme, and Britannia being particularly fine. They also had Malmaisons, including the fine new salmon Duchess of Westminster. Standard polyantha Roses, a collection of Acacias, and Gerberas in variety completed their display. But the edging of Lotus peltorhynchus should not be forgotten. (Silver-gilt Banksian medal.)

Messrs. R. Wallace and Co., Kilnfield Gardens, Colchester, filled half a table length with select border plants and hardy bulbs, including Tulips. Their new Viola gracilis was again on view; also Primula rosea, Morisia hypogea, a fine strain of Primula denticulata, Gerbera Jamesoni, Anemone blanda synthica, and various Aubrietias. (Bronze Flora medal.)

An assortment of seasonable alpine in rockwork also came from Messrs. G. and A. Clark, Ltd., Dover.

Messrs. James Veitch and Sons, Ltd., Chelsea, had three several displays, one comprising orchids, another stove and greenhouse flowering plants, and the third a large collection of forced and early-flowering ornamental shrubs. Their blue form of Hydrangea Hortensia is the best we know of. They also had Xanthoceras sorbifolia (white spikes), Crowea angustifolia (starry pink), Streptosolen Jamesoni, Boronia megastigma, Rhododendron Veitchianum, fine plants, full of flower; Kalanchoe Felthamensis, Ceanothus puniceus, and Erica propendens, the latter perfect gems. A specimen Medinilla magnifica was admired. In their shrub group they exhibited Rhododendron Handsworth Early Red, Lilacs, Azaleas, and Hydrangeas in four or five distinct shades of blue and white. (Silver-gilt Banksian medal.)

Mr. L. R. Russell, of Richmond, staged standard Cytisuses, Azaleas, and Lilacs, and bush Clematises. (Silver Flora medal.)

Messrs. Cannell's zonal Pelargoniums, in huge bunches, were distinctly better than at any time this year. They surely could not have been better. A good choice comprises Clevedon,



Pyramidal y-trained Azaleas.

scarlet; Lady Folkestone, pink; Mauretiana, blush and white; Cevic, deeper pink; Lucania, salmon-scarlet; and Sir T. Hanbury, plum. Mr. Mease, the grower, said he never had had so fine a display as this. (Silver Flora medal.)

A new feature was the table decorations, done in rosy mauve decorative Pelargonium blooms, from Guy's, 89, Knightbridge, S.W. A pyramid formed the centre, and there were chains of flowers to the four mounded corners.

An imposing bank of Hippeastrums, mostly rich dark crimsons, with several white and pink coloured kinds, came from Alfred Rothschild, Esq. (gardener, Mr. R. Sanders), Halton, Bucks. The plants were very good, and the blooms of large size and substance, three or four on every scape. (Silver-gilt Flora medal.)

Select Carnations came from Mr. A. F. Dutton, Iver, Bucks, who was the premier originator of the present style of showing the American varieties in England, and who still forges well in the forefront. (Bronze Flora medal.) Another recherché exhibit of perpetual-flowering Carnations, with blooms of the highest quality, was presented by Mr. W. H. Page, Tangley Nurseries, Hampton, who secured a silver-gilt Banksian medal.

Sir Edmund Loder, Bart., per Mr. W. A. Cook, sent an exhibit of Himalayan Rhododendron blooms cut from the open, and was awarded a silver Banksian medal.

Decidedly meritorious was Mr. Geo. Mount's gold medal display of forced Roses (cut blooms). Great masses of them, in different varieties, filled a table length. Among the varieties were Joseph Lowe, La France, Ulrich Brunner, Prince de Bulgarie, Mrs. David McKee, Senateur Belle, Killarney, and Kaiserin Augusta Victoria.

A group of Japanese Maples came from Messrs. T. Cripps and Son, Tunbridge Wells. (Bronze Flora medal.) Rhododendrons and alpinas were displayed by Mr. Reuthe, Keston, similar to those of the former exhibition. (Bronze Flora medal.)

New Roses, forced and shown in pots, came from Messrs. Paul and Son, Royal Nurseries, Waltham Cross. We were well pleased with Margaret, a good cerise-pink h.t. of nice soft colour; also Madame P. Euler, quite distinct, a rich shade of crimson, of good round form, fine petals and full, well-built centre. Renee Wilmar-Urban is another full and good flower of a rich blush colour. Lastly, Isabella, a bright satiny Rose of a deep shade. At the back were the new ramblers Tausendschön, with large semi-double flowers in clusters, and of a rich cerise; and Waltham Bride, an early pale creamy white variety of high merit. (Silver Flora medal.)

Messrs. Carter and Co., High Holborn, staged a group of Cinerarias, and another of the Daffodil King Alfred.

Mr. W. H. Young, Mercury Nursery, Romford, staged *Coleus salicifolius nanus*, the Willow-leaved *Coleus*. This is a fine dwarf bedder, with rich purplish and green-edged leaves.

A hardy plant group came from the Misses Hopkins, Shepperton-on-Thames (mostly Daisies, Primroses, and the lesser alpinas).

Messrs. Paul and Son, Cheshunt, N., were represented by choice shrubs. *Vitis Thomsoni*, *Acer colchicum aureum*, *Cytisus Butterfly*, *Deutzia discolor grandiflora*, *Vitis Henryana*, and several good Roses, particularly *Wichuraiana Lady Godiva*, a rosy-pink. They also had boxes of good alpinas. (Silver Banksian medal.)

Certificates and Awards of Merit.

Aspidium (Cyrtomium) falcatum Mayi (H. B. May and Sons, Upper Edmonton).—A boldly crested or plumose variety of the well-known Holly-fern. A.M.

Cattleya Schröders, *The Baron* (Major Holford).—The orange in the throat is rich and deep, and the mauve or heliotrope zone in front is very pronounced, the fringed lip being pure white. The petals and sepals, too, are stout and pure. F.C.C.

Cymbidium eburneum Goodsonianum (Mr. H. S. Goodson).—This is "provisionally named." It is a chaste white flower of medium size, with brownish red lip. A.M.

Cypripedium bellatulum, *Ezhimes variety* (Mr. J. Forster Alcock, Northchurch).—Of the usual size, but thickly spotted with purple-lake over the creamy ground. F.C.C.

Narcissus Buttercup (Mr. Chas. Dawson, Penzance).—The parents were not recorded, but possibly the Campenell enters into this. It is a medium trumpet, of bright buttercup-yellow. A.M.

Viburnum Carlesi (Sir Trevor Lawrence, Bt.).—A handsome and admirable acquisition; a low shrub, with somewhat hirsute, heart-shaped, nerved leaves, 2½ in broad, and pliable. It hails from China and is hardy. The flowers are perfectly white—chalk white—in compact round clusters, 3 in to 4 in in diameter and very sweetly scented. A.M.

Brighton (Sussex) Spring Show, April 7th and 8th.

The spring exhibition of the Brighton and Sussex Horticultural Society was held in the Dome and Corn Exchange on Tuesday and Wednesday, April 7 and 8. Although not so large as we have previously seen, under more favourable and sunnier weather, yet the classes were well maintained, and

competition was good in all but two of the main classes, namely, the large group of foliage and flowering plants arranged for effect, and the large table of foliage plants, there only being one exhibitor in each: Mr. E. Jones, gardener to H. Young, Esq., Withean Grange, Brighton, and Mr. H. Goldsmith, gardener to Daniel Hack, Esq., J.P., Firecroft, Withean, Brighton, who were awarded firsts. Mr. Young's group consisted of a fine selection of Lilacs, Genistas, Liliums, Cyclamens, Cerasus, Spiraeas, and Ericas. Mr. Jones, the able gardener, seems to be an adept at growing and exhibiting in any section. He was, we believe, the most successful exhibitor when we visited the show last year, which honour he well deserves this year, having again taken over thirty prizes, the larger percentage of them being firsts. The table which Mr. Goldsmith arranged was simply exquisite—all that could be desired. Mr. Goldsmith also had the best six Amaryllis, Genistas, and Carnations respectively.

Mr. A. J. Blake, gardener to Dr. E. J. Tulk-Hart, Hove, took first for a well-flowered table of orchids. The chimney-piece decorations for ladies were greatly admired, the winners being Miss Howell, Mrs. H. J. Brill, and Mrs. Garnett in the order given. In the gardeners' classes for same, Mr. J. Backshall, gardener to J. Lawson, Esq., Hassocks, was placed first, closely followed by Mr. H. Goldsmith, more flowers being used in both these exhibits than in the ladies' classes. Mr. E. W. Haywood, gardener to Lord Denman, Balcombe Place, was first for twelve varieties of cut flowers, and second for twelve blooms of Roses.

Messrs. Sutton's, of Reading, offered prizes for the first time for groups of twelve Cinerarias stellata, which brought forth some comprehensive little groups, for they were staged on the floor. Mr. G. Chandler, gardener to S. C. Witting, Esq., Hollingbury Copse, was first; Mr. H. Bennett, gardener to P. H. Bayer, Esq., Withean, second; Mr. J. C. Reeves, gardener to Capt. H. Acton Blake, Rusper, Horsham, third. Mr. E. Jones had the best six plants of Cyclamens, also Azaleas, Hydrangeas, Liliums, Pelargoniums, and group of Roses. Mr. H. Bennett took first for six pots Narcissi; Mr. C. Moppett, gardener to Arthur Carey, Esq., Roedean, second; Mr. A. E. Golding, gardener to H. St. George Voules, Esq., Dyke Road, Brighton, third. Mr. A. J. Blake was first for a very gracefully arranged group of miscellaneous plants; Mr. G. Bennett second. Hyacinths and Tulips were strongly represented, the chief prizewinners being Mr. A. E. Golding, Mr. C. Moppett, Mr. G. H. Bennett, Mr. G. Chandler, Mr. A. J. Blake, Goldsmith, and Collis. For six table plants: First, Mr. G. H. Bennett; second, Mr. H. Goldsmith; third, Mr. F. Collis, gardener to Mrs. Hughes, Preston Park.

Non-competitive exhibits were well to the fore from the following: Messrs. W. Balchin and Sons, Hove; J. Cheal and Sons, Crawley, table of miniature rockwork, Azaleas, Narcissi, and Roses; Mr. F. Herbert Chapman, collection of the newer Narcissi and his new yellow Freesia, F. Chapmani. Mr. S. Mortimer, Rowledge Nurseries, Farnham, had a collection of his well-grown Carnations; Mr. C. F. Waters, Balcombe, also had a very fine group of American Carnations. Messrs. J. Williams, Ealing, N., arranged a very effective stand showing some of their new bowl designs in their well-known rural decorations.—H.

Bournemouth Spring Show, April 7th and 8th.

The first spring flower show was held in the Winter Gardens Pavilion, on Tuesday and Wednesday, April 7 and 8, under the auspices of the Bournemouth and District Chrysanthemum and Horticultural Society, and proved a great success from every point of view. The weather was gloriously fine, the sun shining brilliantly, and the public came in large numbers. Mr. Pursglove had a pretty group; and the trade was represented by firms from far afield. Messrs. Hugh Low and Co. staged a magnificent collection of winter-flowering Carnations in a pleasing manner. Messrs. Barr and Sons had a fine exhibit of hardy plants, including the new *Heloniopsis crevicaarpa*, a native of Japan, the spikes of bloom being very fragrant. Tulipa Clusiana, T.'s Margaret, White Queen, and Weardale Perfection, and Narcissi Peter Barr and Loveliness were very attractive. Mr. R. Chamberlain, of Bournemouth, put up a beautiful stand of wreaths, crosses, harps, and other floral devices, and Mr. Bright also staged a pretty group of Carnations, Azaleas, and Cinerarias. Mr. T. K. Ingram, Parkstone, arranged a very meritorious stand of floral designs; while Messrs. Toogood and Sons, Southampton, had a charming display of Narcissi in vases. Messrs. Sutton and Sons, Reading, had a superb stand of Cinerarias and Italian Hyacinths. Messrs. Cannell and Sons, Swanley, also greatly added to the attractions of the show by staging a charming lot of zonal Pelargoniums. Mr. Slade, too, had a pretty collection. Mr. Rolls, the popular chairman of the committee, put up a lovely bank of orchids, which were greatly admired. The groups staged by Mr. Haskins and Mr. Phillips each contained well-grown Rhododendrons and Azaleas; and the grand Orange tree which filled the centre of Mr. Phillips's group scented the whole of one annexe.

Competitive exhibits were also very numerous. In the open division, for a group of miscellaneous plants arranged for effect, Messrs. G. Watts and Sons, Palace Nurseries, Bournemouth, were the winners. Second honours fell to Mr. T. K. Ingram, Parkstone. The dinner table competition was also very keen (Daffodils with any kind of foliage). Mr. Usher, gardener to Sir Randolph Baker, Bart., was placed first with a light arrangement; Mr. W. Shave, gardener to Lady de Tabley, second; and Mr. Prichard third. Messrs. Ingram and G. Watts and Sons were first and second respectively for six pots of *Azalea mollis*. In this order these two firms also secured the prizes for six *Azalea indica*; twelve pots *Narcissi* and six pots of *Polyanthus Narcissi*; twelve pots of *Hyacinths* and twelve pans of *Tulips*.

Class 10, collection of Daffodils, eighteen varieties distinct, brought together a beautiful lot of fine blooms. Mr. Usher secured first position here, and was worthily followed by Mr. Ingram and Messrs. Watts for second and third places in the order named.

There was not a poor exhibit in the show, but on the other hand great excellence prevailed. The *Primulas*, *Cyclamens*, and *Mignonette* in pots were giants, and showed how much skill and care had been bestowed upon them. The promoters of this exhibition are to be much congratulated on the decided success that has followed their efforts.—G. G.

Cornish Daffodil, Truro, April 7th and 8th.

The annual show of the Cornwall Daffodil and Spring Flower Society opened at Truro, exceeding in all-round merit any of its predecessors. The society was honoured by the presence of a deputation from the Royal Horticultural Society, consisting of Rev. W. Wilks (secretary), Major Holford, Messrs. H. B. May, H. J. Veitch, W. A. Bilney, and J. Hudson, and these were highly delighted, and marked their appreciation by making special awards. Beautiful spring weather prevailed, and there was a large attendance, nearly all the county families being represented. As usual, the string band of the Royal Marines from Plymouth were engaged to play in the afternoon and evening on each day. Entries were far in excess of last year, the exhibitors showed an increase of ten, and seedlings were twice as many as were ever shown before, and of much better quality.

The striking feature was the lovely colour of the blooms, a marked improvement in the Daffodil section as compared with last year. The flowers might not have been equal in finish, owing to the inclement weather, but colour and size were remarkable. The most attractive exhibits were in the class for thirty varieties of Daffodils in commerce or not in commerce (any section), where the blooms taking the first and second prizes were as nearly equal as possible, and could scarcely be surpassed. They were shown by Mr. J. C. Williams, of Caerhayes, and Mr. P. D. Williams, of Lanarth, the former securing the first honour on the point of size of blooms. These flowers included a deep gold Ajax, of great size, and very fine bicolors. Mr. P. D. Williams' specimens, while somewhat inferior in trumpets, were quite equal to the winner's in colour, particularly noticeable being Sparkling Beauty, Jasper, and Marsh Light, while Incognita on this stand and elsewhere in the show still maintains its character as one of the most beautiful flowers, with its large flat apricot eye. In the class for single seedlings, a great advance was shown, and the first three finest blooms of English raised parvi-coronati were magnificent flowers. Owing to the lateness of the season, one usually great contingent at this show, Poeticus, was practically absent, but some of the flowers that have taken first honours on previous occasions continued to hold their own, such as Homespun and White Queen, and in trumpets King Alfred was still scarcely surpassed.

The whole show of Daffodils spoke volumes for the resources of the county, nothing practically being ready up the country in such a backward season. In the flowering shrub section the exhibits of Mr. R. Fox were a feature, and some of the members of the R.H.S. deputation asserted that they had never seen better, or even any to equal these, from out of doors at this time of the year. One specimen in the collection of Lady Ilchester was quite extraordinary, and her whole exhibit was very well set up. *Polyanthuses* and *Primroses* get better and better each year, and the exhibit, not for competition, sent by Mr. Percy Williams, was equalled by none in the county. The cut *Roses* were decidedly in advance of last year, though not up to the mark yet. *Violets* are practically over, and owing to the very cold weather those shown were not equal to those of former years. *Anemones* were very fair, but want more regularity. There was never at this gathering such a show of *Rhododendrons*. One specimen particularly attracted the attention of the R.H.S. deputation, and they desired to specially honour it, but unfortunately they could not give an award because the owner declined to name it, and there were not the three trusses required. Mr. T. A. Dorrien-Smith, of the Isles of Scilly, had a remarkable exhibit of what can only be called "greenhouse plants grown in the open." Some of them were exceedingly rare specimens, and demonstrated very

fully the mildness of the climate in that part of the country. The nurserymen's stands were generally better than last year, that of Messrs. Veitch being particularly attractive.

Messrs. Cartwright and Goodwin, Kidderminster, obtained an award of merit for the Rising Sun, magni-coronati.

Royal Horticultural of Ireland, April 8th and 9th.

Our two days' show of spring flowers, held in the Royal University, Dublin, was, we think, more remarkable for the quality of the exhibits than for the number of entries, although, in the altogether, it was a nice little show in which the most pleasing feature, perhaps, was the amateur's *Roses*, the principal exhibitors here being Edmund D'Olier, Esq., and Ernest Bewley, Esq., T.C., who practically divided the *Rose* honours between them, with Mr. Bewley leading the medal class for twenty-four blooms. The chief trophies competed for on this occasion, however, were the cups, each valued at £10, presented by Lord Artilaun, president of the society, one being for nine pot *Roses*, which was won by Mr. Davis, gardener to Mrs. Goodbody, Obelisk Park, Blackrock, and the other a perpetual challenge vase for Daffodils captured by C. M. Doyne, Esq., with a collection embracing fifty varieties. Daffodils in all classes showed to more or less extent the inclemency of the spring, spring with us having set in with great severity, and Dutch *Hyacinths*, although plentiful, looked a bit "off." Trade exhibits were really the backbone of the show, and were chiefly contributed by Messrs. Hogg and Robertson, of "Holland in Ireland"; Chas. Ramsay and Son, the Royal Nurseries, Ballbridge; Messrs. Wm. Watson and Sons, Ltd., Clontarf, all the above being situated in the County Dublin. Then we had a great Daffodil collection from Sir Jocelyn Gore-Booth's bulb farm, Sligo, and a fine stand of orchids and *Carnations* all the way from Cheltenham, for which the firm of Heath were responsible. Messrs. Browett, of Kingstown, where just at present crowds flock daily to watch developments between the rival steamers, had a very handsome group of foliage plants and ferns. The hon. secretary of the society, F. W. Moore, Esq., M.R.I.A., contributed a group of uncommon things from Glasnevin, our Irish Kew, in which a finely flowered plant of *Arpophyllum giganteum*, a seldom-seen Mexican orchid, was conspicuous. The show, which was open till ten each night, concluded on the first day with a lecture by Mr. Moore on "Plant Life," and on the second day with another by Professor Carpenter, entitled "Animal Life in the Garden." We want these shows better attended, and we want more members for the society, and the council are struggling to obtain both. We particularly want, too, a fine day for the next show, August 5, and when the National Sweet Pea Society joins hands with the R.H.S. of Ireland by holding its provincial show in conjunction with our own in the same building, the Royal University.—K., Dublin.

Scottish Horticultural.

PLANTING FOR EFFECT.

The April meeting was held in 5, St. Andrews Square, on the evening of Tuesday, the 7th inst. Mr. James Whytock, president, presided over a large gathering of members. After routine business, Mr. David King, Osborne Nurseries, Edinburgh, read a most interesting paper entitled "Some Ideas Regarding Planting for Effect." Mr. King has had extensive experience "laying out" grounds for villa gardens, &c., and has travelled largely, and made a special study of many places noted for beauty and effective planting. His paper was a very pithy and elegantly expressed result of his experience and observation. He had three points that he wished specially to enforce: 1, The grouping of trees and shrubs rather than planting them all individually; 2, Copying the best in Nature in their arrangement and design; 3, Advocating the more general use of flowering shrubs, deciduous as well as evergreen. Mr. King described many beautiful effects that had come under his observation, which he described as examples to be copied, notably an avenue at Bowhill, Selkirkshire, and a waterfall near Meikleour, in Perthshire. He also instanced examples which he regarded as warnings to landscapists than as examples to be copied. Some notable places had disappointed him, one of these being Chatsworth, which he thought too artificial. Mr. King also made some pertinent remarks on the formation of *Rose* gardens, and enumerated many trees and shrubs which are not so often seen in shrubberies as they ought to be. The paper was listened to with close attention, and was most cordially applauded at its close. A spirited and instructive discussion took place on the subject of the paper, taken part in by the president, Mr. D. W. Thomson, Mr. Grieve, Mr. Todd, Mr. Thos. Hay (Hopetoun), and others, and on the motion of Mr. Comfort, an enthusiastic vote of thanks was accorded to Mr. King.

There were a number of attractive exhibits on the table, notably six handsome plants in bloom of *Spiraea Peach Blossom*, from Mr. D. W. Thomson, nurseryman, Edinburgh. These were greatly admired. A handsome plant of tree *Paeony* Lord Roberts, with large beautiful white blooms, from Mr. Fraser,

Duddingston Lodge, was awarded a cultural certificate. Mr. A. Johnstone, Hay Lodge, showed beautiful *Rhododendron* blooms, and a plant of *Arisaema rigens*. A vase of *Salvia Heeri* from Mr. C. Comfort, Broomfield, was very attractive; and a pot of blue *Hyacinth Grand Maitre*, with thirteen bloom stems, was shown by Mr. H. F. Cowan, 22, George Street. Intimation was made that at the next meeting, on May 5, a paper on alpine would be given by Mr. Wm. Austin, Comely Bank Nurseries. A strong appeal was made to the members present for a liberal collection towards the Gardeners' Orphan Fund on the occasion of the coming majority festival.

British Gardeners' Association.

A large number of both public and private gardeners attended the first meeting of the London branch of the B.G.A. at Carrs' Restaurant, Strand, on the 9th, when Mr. Hawes, superintendent, Royal Botanic Gardens, Regents Park, gave a very instructive address upon "The Present Opportunities of a London Gardener." The lecturer said he thought the town had a great advantage over the country gardener. He was able to visit the well-kept public parks, and the London gardener had a special advantage, being within an hour's run of the world-famous gardens at Kew. He had seen some of the Continental gardens and parks, but they could bear no comparison with ours. Dealing with his subject under several headings, Mr. Hawes thought the classification of plants was a most important thing for a gardener to study; he ventured to say there were many gardeners who would willingly come a long distance to acquire the correct nomenclature of plants at Kew. To visit shows such as the Temple and others also offered a great opportunity. Apart from these advantages, a London gardener was able to attend evening classes. It was very necessary to have a sound general education, for examination papers' composition has often pointed to some very weak points. There were other allied subjects such as botany, geology, chemistry, and entomology. Visits to museums and public libraries should always prove profitable. Mr. Hawes, in concluding, said every gardener should, nevertheless, try and obtain a good collection of books of his own. A brisk discussion followed. Mr. Hales, curator, Chelsea Physic Garden, said it gave him great pleasure to be present at the inauguration of the London branch. Such meetings enabled them to know more of one another, and interchange expressions of opinion. Mr. Gibson (Battersea Park), in an able speech, said a better knowledge of arithmetic was desirable. This was distinctly shown in the answers to estimating questions set at recent examinations. Mr. Weathers advised the "talking art" to be acquired, as it had its commercial value. A man who was able to speak well was better able to get on with a gentleman, or to secure a post.

Messrs. Andrews, Barnes, Summerfield, Harding—among other speakers—contributed towards a most interesting discussion. Mr. T. Winter, superintendent Marylebone parks, having proposed a hearty vote of thanks to Mr. Hawes, and a similar vote having been accorded Mr. Frogbrook, superintendent of Leyten parks, for presiding over the meeting, the proceedings closed.—A. J. HARTLESS, Branch Secretary.

Devon and Exeter Horticultural, April 10th.

The above society has this year tried a new experiment in holding a Spring exhibition in place of the usual August summer show. As is often the case thus early in the year, the main portion of the exhibits was supplied by nurserymen, competition in the various classes being very weak. Mr. W. Brock (gardener, Mr. W. Rowland), a veteran exhibitor at Exeter, secured most of the first prizes, whilst Mrs. Gaze Hodge, the Rev. E. E. Heathcote (gardener, Mr. Witton), and Mr. C. M. Collingwood did well in the various classes. Hyacinths and Tulips were weak, but there were interesting exhibits of hardy perennials and flowering shrubs by Mrs. Kingdon and various trade exhibitors. Mrs. Smale was first in table decorations. Messrs. R. Veitch and Son (Exeter) made an attractive display of Carnations, Erica Veitchi, a large collection of Narcissi and various rare hardy flowers. Mr. W. J. Godfrey (Exmouth) had a tasteful exhibit of Carnations, zonal Pelargoniums, and ferns, including the new varieties of *Nephrolepis*. Messrs. Barr and Sons (Covent Garden) showed a large assortment of Daffodils, Tulips, and stove plants; whilst Messrs. Cuthbush and Co. (London) with alpine, &c.; Sir Jocelyn Gore-Booth (Sligo) with Daffodils, and Mr. W. Luxmore Jones (Exeter) with Cyclamens, materially aided the general display. The judges were (for decorative classes) Mrs. Hamilton Gell, and (for other classes) Messrs. W. Fitzherbert (Kingswear) and W. Blenkins (Truro), Mr. G. W. Jackson being the hon. secretary.—S.

Bristol Gardeners'.

A well-attended meeting was held at St. John's Parish Rooms, presided over by Mr. C. H. Cave. The meeting was of exceptional interest, being the official visit of the Bristol amateurs. The subject for the evening was *Chrysanthemums*,

by Mr. Harris, a well-known and successful grower. He detailed his own practical experience. Mr. Lee opened the discussion, followed by Messrs. Curtis, Binfield, Garnish, Morae, Clark, Harford, and House. Mr. Hayball proposed, and Mr. Shelton seconded a vote of thanks to the lecturer. For six varieties of Daffodils (prize given by C. H. Cave, Esq.), Mr. Binfield was first, Mr. Scott second, and Mr. Clark third. Special certificates went to Mr. Spry for three pots of *Mignonette*, Mr. Hunking for *Laelio-cattleya Felicity*, and an ordinary certificate went to Mr. Curtis for *Dendrobium nobili nobilis*.—J. S.

Birmingham Gardeners'.

Mr. James Webb, gardener to W. Byng Kenrick, Esq., Metchley House, Edgbaston, who, at the society's fortnightly gathering on the 6th inst., delivered his initial essay before an appreciative assembly. The subject was "Alpine Plants and Their Culture," illustrated by a nice collection. Mr. Webb made a great success when in charge of the pretty rockery as foreman in the gardens at Maplebank, belonging to Alderman C. G. Beale, J.P., which rockery was well illustrated in the *Journal*, May 9, 1907. Mr. Webb dealt with his subject in a lucid and thoroughly practical manner. An interesting variety exhibited was a seedling form of *Arabis alba variegata*, raised by himself, with the foliage most distinctly dentated, and the habit of the plants dwarf and compact. The committee suggested that it be named James Webb, and an award of merit was unanimously accorded. The lecture gave rise to an interesting discussion. Mr. Webb exhibited photographs of the alpine rockery constructed by himself at Metchley House.—W. G.

Young Gardeners' Domain.

* * The prize is awarded to Mr. W. Emblen, The Gardens, Childown Hall, Chertsey, Surrey, for his letter on "Herbaceous Plant Borders." The several articles are each excellent, but there is a tendency to exceed the limit of 500 to 600 words.

Herbaceous Plant Borders.

Everything that has been resting all the winter has begun to burst into growth, and it will soon take one all his time to keep the borders as they should be kept. The Dutch hoe should be frequently used to keep down weeds, which are making their appearance. The clumps of Delphiniums, Lupins, Penstemons, autumn Phloxes, and all of like luxuriant habit, are considerably improved in their first blooms by having a moderate proportion of their stems thinned out as early in the season as you can do it, so no time should be lost now. It is far better to have half a dozen good spikes than more inferior ones. Attention should also be paid to staking as soon as the plants are high enough to get a tie round the stem. But never bunch them up close, for nothing ruins a plant's beauty or looks more untidy than bad tying. If the stakes are given a coat of green paint they are not nearly so unsightly, and what is more, they will last almost twice as long as those unpainted. Labels, too, should be gone over now, and any that appear rotten should be at once renewed. These may appear little trifles in themselves, but it is close attention to small items that make all the difference between an untidy and a well-kept garden. Annuals, too, form a chief feature in taking the place of things that have finished flowering. These should be sown now; but judgment will be needed to make sure they are sown where they will fill up a gap in a month or two. It is always as well to have a few boxes of Asters, Stocks, Antirrhinums, and such like kept back for filling in, but avoid overcrowding. Liquid manure can be applied copiously and with excellent results during the flowering season. In fact, too much care and attention cannot be given to this part of the garden. Decaying foliage, dead flowers, and seed vessels should be at once removed. A constant eye should be kept on all weakly and rare subjects in the collection during spring, summer, and autumn, in order to anticipate disaster or loss, and to guard against them. One could fill many pages in writing on this subject, but space will not permit of more than a few details. If care is taken in the selection of plants, and every attention is given to the culture, I am sure the borders will be gay, and there will be plenty of blooms for cut purposes for quite ten months out of the twelve.—W. E., Chertsey.

Codiaeums (Crotons).

Among ornamental foliaged plants few, if any, are so beautiful or so welcome in our collections as Crotons. When required for table decoration they should be grown with single stems. The best way to obtain these is to take off the tops of any strong growths, the centre growth being the best, and root them singly in small pots. Place in a brisk bottom heat, keeping them moist and close, where they will soon emit roots, without losing any

of the leaves attached at the time they were inserted. When rooted a little air may be given, gradually affording more till they will bear full exposure. The next shift should be into 48-size pots, using a compost of good fibry loam, with the addition of a sprinkling of sand and a little charcoal. Pot firmly, and place on a shelf quite near the glass. Great care must now be given to watering, as attention to this one point is undoubtedly the means of keeping their lower leaves; and if these are not kept Crotons look very unsightly, and are an eyesore to the cultivator. An even temperature should be maintained at all times. In order to bring out to the fullest extent the rich gorgeous markings of the leaves, they should be exposed to full light and sun by raising them well up above the other plants. We adopt the plan at High Leigh of hanging the plants up to the roof glass. Not only do they reach a high standard of colour, but grow into nicely-shaped plants, ready for table decoration. The floors are also damped with liquid manure water from the stable yard, which helps to increase the colour. The manure water is put down in the evenings.—ALBERT E. ROSS.

Lawns.

Annual top-dressings are necessary to keep a lawn up to the required standard. Well-rotted manure, old grass cuttings, rich loamy soil, with an addition of soot and lime, make a capital compost for this purpose. This compost should be applied in early spring. If the lawn be mossy, the moss may be well raked out before the top-dressing is put on. Plantains, Daisies, Dandelions, &c., should be ruthlessly dug out as they appear. Many persons believe that a little lawn sand dropped in the crowns of these weeds will kill them. On the contrary, for although the crowns are destroyed, the tap-roots remain, and these throw up a number of young growths. Thus the last state is worse than the first. Another foolish practice is to obtain seed from the hay-loft to re-sow bare patches. This is false economy, as probably 75 per cent. of such seed is composed of weeds, or clover and grass utterly unfitted for a lawn. Far better to buy a quantity of good seed from a reliable firm, even if this course is more expensive at first. In times of drought artificial watering must be resorted to. Dryness is fatal to many of the choicer kinds of grass. Should the watering be impracticable, the mower may be used without the box. The cut grass acts as a protector of the roots against the fierce rays of the sun, and soon becomes invisible. Now is the best time for making fresh lawns by means of seed sowing. The ground must be thoroughly dug, broken up, and raked level. If dug in autumn or winter so much the better. A light roller run over before sowing will ensure a greater degree of levelness on the surface. When the seed has been sown a good raking and another roll will be necessary. During the first season of growth care must be taken not to mow too close to the ground. A faulty machine will drag many of the young plants out bodily. For sowing under trees it is advisable to procure stronger species of grass. These can be obtained of any good nurseryman.—H. C.

Young Gardeners v. Book Representatives.

What young gardener who during his career has not come into contact with the fluent-tongued "book representative," with his numerous contrivances to secure an order; whilst not unfrequently sarcastic remarks are forthcoming when he fails. My latest experience of the kind happened some time since. Whilst at work in the houses, a smiling-faced individual entered, shook hands with me, and enquired as to my health. Then after a few other preliminary remarks about the weather, &c., he went on to ask how long I had been in my situation, and if I should like to better my position. As I was thinking of making a change, naturally I answered in the affirmative. Then followed enquiries of exactly the kind of place I required; of which, after giving full particulars, my would-be benevolent friend entered my name on his register. He promised to send a suitable job along in a short time. "But," said he, "kindly keep it secret, as he could not extend this favour to everyone." Now comes the business part of the matter. "Of course," says my friend, "to fulfil the numerous responsibilities of my new situation I shall require a reliable friend for reference, so cannot do better than speculate in a set of the volumes that he has the honour to place before me." Then follows an easy flow of words on the wonderful merits of this particular work, assuring me that only a limited number are printed for disposal in each district, after which time they cannot be obtained for any money. In short, for future success they are practically indispensable. The next difficulty is the price, which I am told is insignificant—simply one shilling per week, paid monthly, for the space of a few months; or for cash a small discount is allowed. The sequel is that I signed an order for the books. These in due time arrived, with a note informing me that my remittance per return would be esteemed. But since bidding "Good day" to my courteous friend he has disappeared, while the visionary job has yet to come. Perhaps other young gardeners can give us more favourable instances of their experiences with book canvassers. In conversation with

my friends, it has transpired that the promise of a better job was the general *modus operandi* of this man's business in this district.—SUSSEX.

Cinerarias grandiflora and stellata.

Like the Chrysanthemum, the Cineraria has evolved from a very insignificant plant, and were it not for the present stellata form now in cultivation one might almost forget that the form grandiflora was ever anything else but what it is to-day. The original strain of Cineraria grandiflora put into commerce was produced from C. cruenta by selection, hybridisation playing no part at this stage. That was close on seventy years ago. Since then there can be no doubt that new vigour has been infused from various stocks, which has eventually produced that beautiful intense blue colour so sparse among our flowers, and the roundness of flower and petal so dear to the old-time florist, and the dwarf, sturdy habit, with short leaf-stalks and large heavy leaves. No sooner was this type brought to a high standard of perfection than something different was witnessed. The exuberant C. grandiflora was crossed with its old prototype C. cruenta, and the result gave us the free and graceful stellata type of to-day. What a roundabout way to go! The stellatas now seem to be ousting the old heavy grandifloras by reason of their greater diversity of colouring, their adaption as a decorative plant, and their easier culture.—P. W. A.



Gentle Continuous Feeding.

For stimulative purposes the above is now becoming general to induce breeding in poor colonies. All bee-keepers know, or should know, at what time the various honey yields may be expected in their district, and every stock from which it is intended to secure a harvest should be fed continuously for at least six weeks prior to this honey yield. The bees must be encouraged to breed to their full power, and a swarming population should be on hand at the psychological moment.

Of course, if there are colonies heavy with sealed stores, a little of the honey cells should be shaved off with a knife, and this the bees will re-store in a better position around the brood, and a considerable quantity of extra brood will be the result, and when the honey commences coming in all the colonies which are full of brood and food may be supered. Weak stocks should have their space contracted to just what space they can be crowded into; this economises the heat of the cluster, and after being stimulative fed for about a fortnight, they should be examined, and if more bars are required these should be added. If colonies are too weak to do much, uniting is the better plan, as two weak lots made into one would be able to store honey at some period of the season, but the two lots, if kept separate, would put none in the supers.

While stimulative feeding is being carried on, all draught in the hive should be prevented, and additional coverings added to prevent waste of heat and vapour, both of which are essential to brood rearing. Many feeders give too much syrup, or too little, but the best for the purpose is one which is graduated, and is adaptable to all kinds of feeding, rapid or slow, and an index shows what the bees are taking, and the supply can be regulated easily. It is surprising how readily bees can take their food through such a limited number of apertures. For stimulative purposes the food should be made thinner than usual, four pounds of sugar to two pints of water being about the correct proportion, and this will save considerable bee labour in carrying water.

Queenless Colonies.

These should be united to others which are in possession of fertile queens, as there is little hope at this time of saving them in a useful condition until drones appear. The only alternative is to purchase a fertile queen from a reliable breeder to save a strong colony. Old queens not infrequently lay a few drone eggs in worker cells, and these are readily perceptible to the practised eye, as they appear among worker brood, and when this occurs a young queen should be substituted for the old one as soon as practicable, otherwise, if an attempt is made to run the old one through the honey season her laying powers often fail in the thick of the flow, and the population diminishes rapidly owing to increased wear and tear, and the hatching brood lessens, the stock dwindles, and the bee-keeper wonders what is the matter with what was his best stock at the commencement of the flow. Often by the time he interferes with the brood nest another young queen is there unfertilised, and she has to be found and removed before another can be introduced. This when the population is so enormous is rather a difficult task.—E. E.



Hardy Fruit Garden.

CLEANING FRUIT PLANTATIONS.—The recent most favourable weather should cause all cultivators to strain every nerve to get weeds of all kinds in subjection in their fruit quarters. With the surface soil dry and working freely, on large plantations every hour possible should be utilised for horse labour. Just at present we are leaving all other work and putting every hand to the hoe, though we still have some arrears of digging.

FRUIT BLOSSOM.—By the time this is in print the Plum blossom will be fully open in many localities, and an anxious time it usually proves. Some of the large growers are using, with a certain amount of success, oil pots for raising the temperature surrounding the trees during frosts, and thus protect the flowers. We look and hope for considerable improvement in these oil pots before their use becomes general.

PEACHES.—It becomes necessary to once more remind growers of outdoor Peaches of the work of disbudding. This is a most important part of the cultivation of the Peach, and with some growers, at any rate, is liable to be neglected, owing to pressure of other work at a busy season of the year. The trees must have attention in this matter if they are to prove successful examples of culture. We do not advise that the whole of the work should be hastened through at once. Do a portion or a tree at a time. We have spent many a pleasant hour in the evening at this work, and it will be found that the trees are quickly gone over. Endeavour to so reduce the number of shoots that there remains after the final disbudding sufficient shoots for carrying on the circulation of the tree and for filling gaps, with a number of basal shoots for carrying on the fruiting of the trees another or next year.

STRAWBERRIES.—There is plenty of time for mulching these with stable litter if done at once. Long material laid between the plants now will be washed quite sweet and clean by the time the berries are ripe. Whatever a certain class of writers may say against the practice, it certainly has much to commend it on the score of economy. The material is easier to place around the plants than fresh untrampled straw, and it must contain some small proportion of nutrient matter to be washed to the roots of the plants. We certainly would not use straw if a sufficient amount of such material were at command for our use.

OUTDOOR FIGS.—The winter we have passed through cannot fail to have been somewhat unfavourable to the growths of these where left unprotected. It is now quite time the pruning and regulating of the growths received attention. Remove all dead wood, and thin out so that the young wood can be trained evenly at about 5in or 6in apart. Do not shorten the young growths, unless this is unavoidable owing to lack of space, as upon these is borne the season's crop.—J. W., Evesham.

Fruit Culture Under Glass.

POT FIG TREES.—The bright sunny weather of the past few days will have done much good, both to the Fig and other fruits, and with more light there will be a greater demand upon the roots, so that more feeding will now be necessary. For this work I would advise liquid manure water regularly, and if possible to give the trees a top-dressing of rich soil and manure. For that purpose fresh short stable droppings mixed with good loam are valuable. To give the roots in such a limited space a better chance, it is well to place pieces of fresh turf round the rim of the pots or bands of zinc. This allows of a great depth of soil, and prevents the plants drying so readily.

OTHER POT TREES.—For the autumn supply these should be kept as cool as possible; indeed, it is well to place them under a north wall or cool, shaded house. This done, such kinds as the Negro Largo, Nebian, and Dr. Hogg's Black are splendid for supplies from October to December, a period of the year when the rich fruits of these fine late black Figs are much appreciated. Trees of late kinds in small pots raised from cuttings last year will benefit by potting on into larger pots, but do not overpot, as the Fig soon attains a large size, and small pots, such as 10in or 12in, are most suitable at the season. A small shift should now suffice at one time. The soil should not be too rich: good loam with a liberal addition of

fine old mortar rubble, wood ashes, and a little bonemeal, if the soil is poor. Cuttings from early trees should now be struck. Taken off with a heel, 3in or 4in long, placed round the sides of small pots in a sandy compost and plunged in bottom heat, will soon root, and make fruiting plants in two seasons if given liberal culture. I prefer the young wood to the older cuttings, if well attended to.

TREES IN BORDERS.—Trees that are well furnished with large fruits, and with a restricted root-run, will take liberal supplies of liquid manure, and the border may also be given a top-dressing of rich material also to encourage surface roots, but, of course, this advice is not applicable to trees at all gross, or with scanty crops. The growth should be regulated fairly all over the trellis. Rank growths should be checked, also all useless foreright shoots, at the same time removing sucker growths. I prefer a clear stem at the base, as this allows the sap to rise freely, and it is an easy matter to keep the trees clean. Trees swelling their fruits freely will now take much moisture. Liberally syringe overhead twice daily, and thoroughly damp all parts of the house. At times red spider attacks the trees after a spell of dull or wet weather, and should the least sign of it appear, use sulphur freely on the pipes, and whilst doing so, maintain a warm dry atmosphere. Trees that always carry a second crop are frequently far too fruitful, and severe thinning is necessary. The fruits should be reduced to three or four of the strongest and best-placed, and even less on the small or weak shoots, and with trees at all thick it is well to remove any crowded shoots or weak spray growth. The temperature should be 60deg to 65deg at night, and 10deg higher by day with a free rise by sun heat, and ample ventilation in fine weather; indeed, in houses that at times cast their fruits badly, I would advise liberal ventilation, a lower night temperature, and to be kept as free as possible from insect pests. Fruits that spot badly, just as they have finished swelling, should have less moisture overhead.—G. W., Brentford.

The Plant Houses.

STOVE.—Most of the potting in this house will now be finished. Various insect pests spread rapidly at this season, frequent syringing will keep these down to a great extent, but occasional fumigation, and dipping especially dirty plants in insecticide, will be necessary. Damp the stages and paths several times daily. The temperature of the house should now be about 65deg F. at night, 70deg F. day, rising 5deg or 10deg with sun heat. Lower the fire on bright days so as to dispense with as much artificial heat as possible.

INTERMEDIATE HOUSE.—Pot on the forward Gesneras and Gloxinias, and start another batch into growth. Make up pots of Achimenes growing in trays, 5in and 6in pots are the most suitable sizes to use. Pot Javanese Rhododendrons. Streptocarpus opening their flowers should be removed to the warmest part of the show house. Pot Jacobinia magnifica and varieties which are expected to flower in July and August. Feed with liquid manure the forwardest Cannas, and pot up another batch. Ventilate freely on bright days.

THE GREENHOUSE AND CONSERVATORY.—Air should be admitted liberally to these structures on all favourable occasions; a little bottom or top ventilation must be left on all night. Many of the choicest New Holland plants are in flower at the present time. A few of the best are Eriostemon myoporoides, Boronia heterophylla, B. fastigiata, Acacia hostulata, Audouinia (Diosma) capitata, Erica persoluta alba, Chorizemas, and Leptospermum scoparium. It is usual to arrange plants in the conservatory rather closer than in the growing houses, it is important however to always give hard-wooded plants ample space, as they have to be grown year after year. Many hardy and half-hardy annuals coming into flower must be securely staked, or later on they will cause much trouble.

HIPPEASTRUMS (AMARYLLISES).—As these pass out of flower they must be returned to the growing house, for it is now we must build up a bulb to flower next spring. Some growers prefer to plunge the pots to the rim, while others stand them on an ash or shingle stage. There being very little foliage on the plants till after flowering, they do not require much water, beyond what they get from syringing; more, however, will now be required. As the plants are grown in comparatively small pots, top-dressing and liberal feeding will be necessary as soon as root-growth is active.

GENERAL REMARKS.—Make another sowing of Mignonette, also Lobelia tenuior, and Schizanthus pinnatus. Feed herbaceous Calceolarias, and stake plants pushing up flowering spikes. Sow seeds of Lisianthus (Eustoma), Russellianus, and Exacum macranthum in the propagating house. Lachenalias, as the flowers decay, must not be cast aside; place them on a light shelf and water once or twice a week with liquid manure.—A. O., Kew, Surrey.



WEATHER NOTES (F. Cave).—In reply to your note, while thanking you for offering, we do not think that additional weather tables would be interesting to our readers.

REPOTTING ERICAS (W. W.).—The advice not to attempt to liberate the roots from the soil when repotting applies equally to summer and winter-flowering Heaths. A little root-disturbance by removing the crocks, also by clearing away a portion of the loose surface soil, is all that should be permitted in transferring Ericas from small into larger pots, and even in those respects the work of liberating the roots must be done with great care and much caution. In potting these plants it is important that both the soil in which the roots are established, and that to be used is healthily moist. If either too wet or too dry success will not follow. The new soil must also be pressed as firmly round the roots as the old is, a blunted stick being used for that purpose. Many Ericas are spoiled by potting them too lightly and disturbing the roots needlessly.

LEAF-MINING INSECTS ON MARGUERITES (L. S.).—Your plants are attacked by a leaf-mining insect of a similar nature to those that are so destructive to Celery, Parsnips, and other plants. Eggs are deposited by a small fly which hatch into maggots, these eating out the substance of the leaves and ruining the plants. So destructive is the Marguerite pest that in many places the plants cannot be grown at all. We can only suggest one remedy. We should like you to try the effects of petroleum prepared as follows:—Boil 2oz of softsoap and a lump of soda the size of a walnut in a gallon of water, stirring in briskly half a wineglassful of ordinary petroleum that is burned in lamps. When this is cool stir again and dip a plant in it, or syringe it well, but keep it out of the sun until it is dry. If this does not injure the plant add twice the quantity of petroleum, and try the mixture on another plant. So continue the experiment of increasing the petroleum so long as the increased strength does not injure the leaves, and we think it possible you may destroy the maggots without spoiling the plants.

BORDER UNDER TREES (A. G.).—Nothing succeeds so well as a bordering to walks or for covering the ground under trees as Ivy. The common or Irish Ivy is extensively employed for edgings in some of the London parks and gardens, and neatly cut once a year in late spring, a fresh and good appearance is maintained. The soil should be dug and enriched if needed before planting, and the better it is the more quickly the Ivy will grow. In choosing plants take care they have good roots, long trailing Ivy plants with few roots seldom growing well, and many die. The growths may be pegged down to form a border of any required width, and can easily be kept within bounds with the shears. Hollies grow well under trees, especially the broad-leaved Hodgins' or Shepherd's, Ilex Hodginsi and I. Shepherdii, when the soil is suitable. So do Rhododendrons and Aucuba japonica, though they do not succeed in all districts. The Evergreen Privet, Ligustrum japonicum, grows well under trees in any ordinary fertile soil. Plant any of those mentioned that grow well in open positions in your garden. The present is a good time for planting them, also Ivy.

AZALEAS AND HEATHS UNHEALTHY (J. H.).—Azaleas well managed flower profusely every year. They require to be firmly potted in good peat soil with a little leaf mould and sand intermixed and very carefully watered, neglect or mistakes in this respect quite nullifying everything else that may be done for them. If once the soil gets quite dry the hair-like roots shrivel, the leaves fall from the plants, and flowers consequently cannot be produced. A greenhouse temperature suffices, a little extra heat in the spring when growth commences, and copious syringing being advantageous. Plants that are very unhealthy are difficult to restore. Close pruning will not benefit them, but removing a good portion of the old soil and repotting in fresh of the nature indicated, using pots as small as possible, and pressing the soil very firmly, always keeping it moist but never saturated, placing the plants in a warm greenhouse or vinery, syringing them at the least twice a day, may possibly induce them to commence fresh growth. That is the only way in which they can be improved. Heath is perhaps still more difficult to renovate. They must not be pruned below the foliage or they will die, and the general treatment as advised for Azaleas may be adopted, except that they will be better in a cool frame than a warm house. Only experienced cultivators can grow these plants satisfactorily.



April is Here.

And we are in England! Browning would have us believe that no privilege can exceed this. Perhaps he found the Italian skies too bright, and the heat too trying, and pined for a change. Well, just now we do not know if we should not prefer other climes. This is not quite all one's fancy would paint. March has been wet, very wet and cold; no drying winds, no dust. March went out as roughly as it came in, and so far as we have got, April, or the fact that the days are classed in April month, shows little improvement. Of course, we are quite prepared to find that by the time these lines are in print summer will be upon us. Such things usually happen! But we find comfort in the fact that should next week prove summer indeed, the week after, in all probability, will have harked back to December.

One thing puzzles us so, and indeed we are inclined to laugh. All who meet us say, "How cold; how windy; how unlike April." If they are young we can forgive them. They are full of beautiful poetical illusions, and we never wantonly destroy a harmless illusion; but if they are aged, we retort that this April is just like the majority of Aprils we have seen; we expected no better, we have got no better. When young we only felt the warmth of the sun under the south wall; the sharp nip of the east wind did not disconcert us in the least, in fact we hardly noticed it. Now all is changed. The sunny bit under the wall is so small; we pass out of it so quickly. There is a long dreary passage where the biting blast rages, and where our blood gets chilled, and we feel old, very old.

But, after all, there is a rare buoyancy in the air; a spirit of life rather than death; a desire for work and action. Everything around is moving, and shall man alone remain quiescent? If he does he will be out of things, for there is work for one and all, and perhaps rather more than some of us like. The first moving thing we notice is possibly the grass. It is fresher, and greener, and thicker than it was a day or two back. After all, the rains have not done it harm; and it is too tough to feel the effect of the night frost. Every hour now that it can have for growth it fully employs. But alas! the farmer is on the alert too. The yards seem overcrowded; the hay stacks show what has been rather than what is. The monthly cake bills in the aggregate are heavy, and the roots (save and except mangolds) are nearly done. So it comes about that the old grass gets no further indulgence, for needs must when there are so many hungry mouths to fill.

We see a few "seeds" stocked; it almost looks like killing the goose of the golden egg fame. The "seeds" are so tender, so susceptible to frost, so easily injured; but the ewes and lambs must go somewhere, and a good supply of mangolds on the "seeds" will help things a little; and each day we live in hope of a few more hours of warm sunshine. The hedges are breaking here and there in sheltered nooks—nothing will keep that foliage back when the time of year comes.

We ought, in the nature of things, to see in our rounds flourishing fields of wheat, but we do not, partly because they are few and far between, and partly because those that exist do not yet look as though they had put on their spring dress. There was too much rain this winter. However, this may soon be a thing of the past. We have often seen a thin crop come out at harvest as a good crop. There is more room for the better development of each individual plant.

As for barley and oats, well, the less said about their appearance the better. In many cases the seed sown is only just decently interred. We like to give our corn a chance by providing a dry warm bed, but the difficulty this season has been great. Much seed has gone into both a cold and clammy resting place. There is so much to do; work presses on every side, and the temptation to unduly hurry is great. "Haste is of the devil," says the Spanish proverb, but what is to happen when the season is so late and backward that every hour is of advantage?

There is no prettier sight just now than the ewes with their lambs, full of life and vigour; but it must be remembered that the ewe is doing double duty, and requires some help over and above the new, and perhaps scanty, grass. There is nothing like grass for producing milk, but there must be plenty of it. Surely, now the spring is coming, butter will be more plentiful and prices easier for the buyer. There is no article produced by the farmer at which he loses more than butter. How does that strike those good people who are always urging the

B.D.F. to produce more butter? If it came to a personal matter they would not like it themselves. We believe the time is not far distant when butter will only be made just for private consumption, except in those farms too remote from towns, or rather, perhaps, too remote from the station to make the milk trade a possibility, and we doubt if any system of co-operation will ever be available to gather in and collect those far scattered gallons of milk, for there are still farms ten, twelve, or even more miles from a station, and very much isolated in regard to neighbours.

When the sun shines warmly the careful horseman will see that the newly-foaled mare and her offspring take air and exercise, and incidentally get a bite of grass. Probably he will himself keep close at hand, knowing how soon the sun may retire behind a cloud, the sudden squall come up, and all look dreary as a December day. He knows full well that a sudden chill may result in dangerous illness, if not death, and rather than run any risk he considers the hour well spent in looking after his valuable stock. It is wonderful how soon the dangerous time is past, so that there is all the more need to exercise timely care. All stock is worth care, but especially the mare and foal. We have far too few young horses as it is, and the day may come when we shall be at our wit's end to find the necessary supplies for army remounts. Of course, this does not apply to heavy horses, but on most farms there are, or should be, a few light-legged 'uns bred.

We are rather harking back to cows and milk-flow; and the milk-flow leads back still further to the calf. We often wish these little animals could see their way to an autumn birthday. Their mother's milk would come in so usefully in the winter quarter; but they themselves, unless very well done, might suffer through lack of what we may term "seasonable weather." Professor Wrightson draws attention to one fact that will probably have been noticed often by our readers, and noted with vexation, and that is the prevalence of bull calves over heifers. He thinks Nature must have intended two bulls for each cow! However, if the herd be a good dairy one, no doubt the owner can find a ready market for his bulls. We know of one big dairyman whose bulls are bespoke long before they are dropped. The Professor thinks that cows will milk well on grass alone. Well, he must have particularly good grass, and lots of it. Mind, we do not think cake or artificial food is necessary just when the grass is in its first flush, but that time is short, and we think a little of something extra will pay.

A doctor has discovered, or thinks he has, the cause of much infantile diarrhoea in babies who are brought up on cow's milk. Cotton cake, which is an albuminous food, however good for the cow or for the secretion of milk, is quite wrong for the baby. We all know that too rich milk will soon kill a calf, and that two, or even three, calves are not too much for one cow to rear. It is the case of the plum cake—too much for the one greedy boy, but a pleasant treat for all the room companions. We fancy it resolves itself into a question of digestion. The calf sucks the milk in its entire state, and if the milk be too rich there is diarrhoea, and generally death. The babe gets the milk highly diluted, thus taking it in a more digestible form. Ill effects on the babe are noted before ill effects on a calf, and possibly a babe is more easily doctored. That many do succumb we know, alas! But often that will be from impurities in the milk, or actual deterioration of the milk. We have often thought excess of roots made the milk unwholesome for young children, but we had never thought of blaming cotton cake.

A great deal has been said lately of the poor man's "cow," i.e., the goat; and indignant questions are often asked as to why the poor man with limited room does not keep a goat, and so supply his family with good wholesome milk. We should say the goat is not a very popular animal in England. Perhaps we are prejudiced, and stupid we often are. But at the same time, we find an indictment against the goat. It appears that in Malta the sailors and marines of the fleet had been in the habit of using goats' milk, and the Malta fever assumed among the men almost the dimensions of an epidemic. The authorities were at a loss to account for this state of affairs, but as a preliminary measure cut off the supply of goats' milk. The trouble ended at once. Whatever other goats do, the Malta goat lives on a very mixed diet, and this diet made the milk terribly unwholesome. One of the points so often urged about goats is that their food is so cheap: they will eat anything. "*Verbum sat sapienti.*"

Work on the Home Farm.

A change to spring-like weather, with sunny days and frosty nights, is not altogether unwelcome, although the frosts are bad for the seed pastures. The plum blossom is not yet forward enough to be in danger. It is grand weather for land work, and there is now plenty of dust behind the drill. It is also capital for getting twitch killed.

We heard two farmers discussing twitch destruction the other day. One was having it hand-gathered; the other was raking it up by hand. Both methods will be unnecessary now, for two

days' exposure with harrowing and chain harrowing will take all the life out of it.

It will soon be time to think about drilling carrots, and now the land has dried freely it can be got ready. If it was deeply ploughed early in spring it will not need moving again, except with surface implements. Having lain some time there will be plenty of small weeds, and drags and harrows will kill these without bringing fresh supplies of seed to the surface. Weeds are expensive amongst carrots. The carrot crop did well last year, but there has been more supply than demand.

It is curious how few carrots are grown for home use for horses, cows, &c., and how often large farmers and farm managers may be heard enquiring where a supply may be had. Of course, the reason in some cases may be unsuitability of land, and in others ground game, which may be very destructive to a small plot. The chief reason, no doubt, is that the crop is a troublesome one. We know one farmer who grows large quantities of parsnips, and as he perseveres with them, the inference is that they pay.

Sheep shearers are in demand. We have a few adepts in this parish, and they are sent for from all sides. Our loss is their gain, but it is awkward to lose all our spare hands during the busy months of April and May. We have suggested that they should use machines, but they are very conservative, and will not discard the old shears.

Wheat grows badly, but more sunshine will do it good. We shall also be able to get it well rolled. We saw a field the other day which was difficult to tell from a bare fallow.

Neglect of Wheat Growing.

Professor Wallace, in opening the agricultural class in Edinburgh University on Tuesday, referred to his recent visit to Canada, the United States, and Mexico. He had inquired into the work of over a score of great public institutions, a dozen being agricultural colleges, which in America were almost invariably sections of the State universities. The work done was admirable and of a practical kind, which was exercising a highly beneficial influence all over the country. Nearly £3,000,000 were annually spent by the Department of Agriculture at Washington, against the insignificant sum of little more than £10,000 a year at the disposal of the British Board of Agriculture. The prices of cotton and wheat were not so much governed by the laws of supply and demand as by the Stock Exchange speculation. The unparalleled success of the British Cotton Growing Association, especially in Africa, would before long have a useful and steadying influence on the price of cotton. There were no such hopeful prospects in the case of wheat. One important reason why bread was so dear to-day to the working man of this country was that 2,000,000 acres of the finest wheat-growing land in the world at his door was either lying derelict or occupied with crops of less importance. The most striking feature on the other side of the Atlantic was the abounding prosperity of the countries visited; work was plentiful and well paid, the unemployed and half-time problem did not exist.

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Journal of Horticulture.

THURSDAY, APRIL 23, 1908.

Spring Flowers.

THE coming of Spring brings with it pleasures to all. After the long and dreary winter we delight in the lengthening days, the milder air, the singing of the birds, and, above all to the gardener, the bursting buds and the opening of the flowers. It is indeed a halcyon time for him, even though it brings with it hard work, for it holds out the hopes of the future as well as the brightness of the present.

And these bright things of spring, how beautiful are they! Ere this appears the Snowdrop and the winter Aconite will have vanished for the year, but they have left behind them a gracious company of the hardy flowers of which they were the pioneers. The snowy Snowdrop has as its successor the equally snowy *Leucojum*, or Snowflake, and for the little yellow cups of the *Eranthia*, or winter Aconite, we have the great flowers of the golden-yellow Crocus, accompanied by sister flowers in many lovely colours and tints. Some of these Crocuses of the spring are magnificent things, but it does not appear to be generally known that some of the older and popular varieties of Crocus vernus are being superseded by still finer and more modern forms. When we realise that such prime favourites as the old Mont Blanc and Sir Walter Scott are giving place to newer and nobler varieties, we feel that in the march of progress the Crocus will move forward too, and that the future of the race will maintain the high position the flowers of the past have achieved.

It is but a step, either in thought or in time, from the Crocus to the Tulip—the Poppy of spring; and we even now begin to taste the pleasures of the Tulip time, with all its glorious array of charming flowers, richly or chastely coloured, some like the staining of a glass window in bravery and brightness. We can place no limit to the future of the Tulip, for have we not the charms of the early varieties,

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the noble mien and the colours of the English and the Darwin Tulips, besides the countless variety offered by the species, many of which are lovely in the extreme, such as the brilliant Tulipa Greigi, or the bright little *T. persica*, with many more, tall and stately, or dwarf and unassuming in all save brilliancy of colour?

Among the Scillas we have a more modest array, yet not a whit less delightful to the lover of flowers. From *Scilla bifolia*, in deep blue, pink, white, and almost rose, we soon pass to the little *Scilla sibirica*, with its little sunshade-like flowers of deep blue or white, and anon to the fine bells of that ally of our British Bluebell, the Spanish Wood Hyacinth, *Scilla hispanica*, in deep blue, purple, pale blue, flesh, pink, and white, and one of the best of our late spring and early summer flowers for the grass. Then we have not yet lost the Glories of the Snow, from our old favourite *Chionodoxa Luciliae*, as we have known it for many years, to the smaller *C. sardensis*, with its deeper flowers; the dwarf but beautiful gigantea, the finely coloured *Tmolusi*, and among the last introduced of the race, and like *Luciliae* of gardens in many ways, that called often *C. Boissieri*, which is the original *Luciliae* found and named by Boissier, but which has only recently come to our gardens.

But what of the Daffodil, all resplendent in silver and gold? It is peerless in its season, and from the time when the little *Narcissus minimus*, the Tom Thumb or the Minnie Warren of the race, opens to interest us, we are agog with delight as we see the galaxy open out before us, through trumpet Daffodils, chalice-flowered, and other sections in silver and gold until the time of that charming flower, the Poet's *Narcissus*, with its chaste flowers, which seem tipped with the fire of love for the sun and the warmth of the coursing stream of Nature's spring.

Then the Hepatica, noble Liverwort, indeed, gives us its blossoms of beauty, none being fairer than the newer double white one, a precious flower, but none too plentiful, and none too easy to retain. In this the rose and white varieties of the noble *Anemone angulosa* may claim the premier place, and these form fitting companions to the smaller flowers of *Anemone Hepatica*. It is but the turning of a page to the other *Anemones*, from *A. blanda*, with its stars of blue or white; *A. appennina*, also in blue and white and rose; the gorgeous *A. fulgens*, and the brilliant varieties of *Anemone coronaria*, the Poppy *Anemone*, truly so called, so Poppy-like is it in its size and colour, as well as in its single-flowered forms.

But the St. Brigid *Anemones* have forsaken the familiar path of the Poppy in form, and give rosettes fantastic-like in their shape, but among the most beautiful of all spring flowers. From these flowers the eye speeds to the sheets of Arabises and Aubrietias, as well as to the Alyssums, all of which have within a few years yielded us new forms or colours. In the Arabises many will welcome the dwarf one called *Arabis albidana compacta*, which blooms earlier than the others; the fine *A. alpina grandiflora*; and a boon indeed has been the double form of *Arabis alpina*, with its white Stock-like flowers. As for the Aubrietias, it is difficult to say where their hues are to end. The rosy *A. Moerheimi* and the almost bluish Bridesmaid are charming things; so in its way is Dr. Mules, deep purple, and a number of others, from the brilliant, but deep, red Fire King, to Lilac Queen, and the pretty *A. tauricola alba*, which are awaiting the admirer of these simple flowers. In the Alyssums the double one is a favourite, and then in *A. saxatile citrinum* we have a lovely flower of great beauty indeed. *Doronicums* vie with other yellow flowers in their efforts to draw us to their sides; the older ones are known to most, but that new one called Miss Mason seems an improvement upon some of these.

The Iris, "of unnumber'd hues," has been with us for some time since the blue and gold of *I. reticulata* shone in our eyes, and from now onward we shall have many lovely things among these Fleurs de Lis. The delicately beautiful *I. Warleyensis*, the charming *I. verna*, the pretty *I. bucharica*, and the many others of early flowering habit, which are only awaiting to be transferred from the nursery to our gardens, are exquisite, for no other word can suggest the graces of form, colour, or mien these flowers possess. And there are Saxifrages in profusion, either pure white, rose and pink and deep red, or all spotted and marked like some dainty lace work. That wonderful little *Viola Papilio*, now giving us some varieties as useful as itself, is hardly ever out of bloom, but now that spring has come it is clad with colour once more, so bright, indeed, that its kinswoman, the sweet Violet, needs all its fragrance to draw us towards its modest little blooms; but then that fragrance! Why say more?

And so, as we pass from path to path, we meet at every turn some flower which commands our admiration. Here is the dainty little *Synthrysis reniformis*, with racemes of blue; the pretty *Heloniopsis breviscapa*, whose modest pink and white is all the more interesting because the plant is but rare; many lovely Primulas, from the exquisite *P. rosea grandiflora*, the pretty *P. denticulata* and its varieties in purple or white, to our many coloured Primroses and Polyanthus. Odorous Wall-flowers, pretty Epimediums, lovely Heaths—for *Erica carnea* is not yet over, and mediterranea and others have opened into

bloom; spiny spring Phloxes, all clad with charming flowers, or giving handsome spikes or racemes, such as those of *P. canadensis Laphami* and others of its kind; Forget-me-nots. Many more there are, while from above are the flowers of tree and shrub, all bright with the flourish of spring, or full of bud to fill with glory the summer time.—S. ARNOTT.

Having seen this operation a few times, and helped in the performing of it, a short account may be of service. Cyaniding is the act of subjecting plants to the fumes of hydrocyanic acid gas for destroying insect life thereon that is detrimental to the health of the plant, instead of using tobacco paper, nicotine preparations, &c. Hydrocyanic acid gas is made by dissolving cyanide of potassium in sulphuric acid and creating the aforesaid gas, a gas that is deadly to all insect life and (what deters it from more general use) to human life as well. Its great recommendation is that it is very certain in its work when used by a skilful hand, and far exceeds in efficiency other articles used for the purpose. Owing to its deadly nature care must be taken not to inhale the fumes, and for this reason devices have been made for mixing the materials inside the house at a safe distance outside, and for opening the doors and ventilators also from the outside; but I do not consider any elaborate preparations necessary, as I will show further on.

To cyanide effectually it is best to give the house two fumigations, with three or four days interval, as although the first dose will kill all living insects, it will not destroy the fertility of the eggs that remain. If it is a warm house to be fumigated the heat should be turned off, and watering and syringing discontinued, as it is necessary for the house and plants to be dry, and the temperature not to be above 55deg F., or the plants may be burned by the gas. Cyaniding should not be done on a wet day if it is necessary to ventilate to attain the desired temperature, as the air in the house will be moist, and this should be avoided. Let me describe the method I have seen successfully carried out for cyaniding a stove-house containing (roughly) 1800 cubic feet air space, for bug, a pest which gardeners consider of a most virulent character. The chief occupants of the house were *Crotons*, *Pandanus Veitchii*, *Dracenas*, *Pancratium fragrans*, *Panicum variegatum*, *Panax*, and *Coleus*. The house being dry and the temperature at 48deg F., the house was closed and the necessary materials brought in. The acid, which is a liquid, must be placed in a glazed vessel; the cyanide, which somewhat resembles common soda, was in a piece of newspaper. The bowl of acid was then placed just inside the door, the operator deftly dropping the cyanide (and paper) into the acid and closing the door instantly.

The bowl, as seen through the glass, appeared as if filled with boiling water, and steam rising. This lasted a short time only, while the cyanide was dissolving. The operation being done in mild weather, the house was locked up and left for the night. In the morning the house was unlocked and the catch lifted, not going any nearer than necessary, the door then pushed open with a pole. After the expiration of a few hours the ventilators were thrown open, being done as quickly as possible, as the sickly smell of the gas hovered in the air. Heat was got up, and later on in the day watering and syringing were attended to.

An examination of the plants revealed no trace of live bug. In three days time the house was again cyanided. This time the *Panax* and *Coleus* were removed, as the dose to be given was stronger than their tender foliage would stand, the operation being repeated same as before. The amount of material used on the first occasion was three pints of acid (dilute) to 8oz cyanide, and a proportionately larger amount of each for the second occasion.

I do not think that any definite rule can be laid down as to quantity, as much depends upon the nature of the plants, the conditions of the house, and the pest to be exterminated. Also, if not used correctly, or under improper conditions, disastrous results will accrue. It should at all times be used by an experienced person, for good results are obtained only by care and skilful management. Needless to say, this method of fumigation, when performed successfully, saves much valuable garden time that would otherwise be spent on less certain and more tedious methods.—A. A.

Seed Dispersal.

A fine object-lesson in seed dispersal has been afforded to botanists by the island of Krakatau, near Java. As is well known, the island was the seat of a stupendous volcanic eruption in 1883, and was denuded of its vegetation. Three years after, a few species of ferns had established themselves, with some grasses and composites—plants with easily carried seeds. The island is now quite covered with plants, including many large trees; the latter form a belt of woods round the coast. Most of the common shore-plants of the Eastern Tropics are found—Cocconut, &c., with numerous orchids and ferns, but inland the vegetation consists chiefly of tall grasses.



Odontoglossum Gladys.

Before the Orchid Committee of the Royal Horticultural Society on March 17, Messrs. Charlesworth and Co., Heaton, Bradford, staged this hybrid *Odontoglossum*. The parentage of it is *O. s. cirrhosum* (whose form it mainly partakes), and *Harryanum* (whose colour it assimilates). Our figure, from a drawing by Mr. Geo. Shaylor, depicts the actual size of the flower. An award of merit was bestowed.

Phaius.

It has been mentioned in this column on several previous occasions that some orchids are more successfully cultivated in gardens generally than where every facility is provided for their special benefit. Now, the genus noted above is no exception to the rule; for the old *Phaius grandifolius* has been seen growing luxuriantly and producing enormous flower spikes in the ordinary plant stove, so they may be looked upon as a useful group, and in every way suitable for a warm greenhouse, or where a portion of the cool end of the stove can be spared for their accommodation.

A SELECTION OF THE BEST PHAIUS.

The finest ever introduced is the true *Phaius tuberculosus*, but unfortunately this is now very scarce. Another one, known as *P. simulans*, is closely allied to the first named, in fact it passed for that species for several years. Both are grand plants, and *simulans* (which possesses climbing stems) has been largely used for hybridising. The robust *grandifolius*, *Blumei*, *Wallichii*, and *Humboldtii* embrace the principal species which have given rise to a beautiful race of hybrids; and among them we find *Cooksoniae* and *Phoebe*, in which *Humboldtii* figured as one parent; while those from *simulans* are more numerous, and include *Normani*, *Cooksoni*, and *Marthiae*.

CULTURAL DETAILS.

The majority of the *Phaius* will be going out of flower, and immediately commences the season's growth, when the repotting may be carried out. Like *Calanthes*, they produce plenty of roots, and therefore enjoy a rich rooting medium; but at the same time it must be of such a nature as to allow the free passage of water. Good fibrous loam should form the principal ingredient to the extent of one half, while peat and chopped sphagnum moss constitute the remainder. To this can be added a sprinkling of finely-broken crocks or charcoal and silver sand. The whole ought to be well mixed, and used in a lumpy state; and when repotting it is advisable to allow rather more root space for such as *Blumei* and *grandifolius* than is usual with most orchids. Ensure good drainage, and press the compost fairly firm, but do not fill the receptacle quite to the rim, because plenty of water is necessary when the plants are healthy and in a growing condition. For a few weeks after root disturbance extremely careful watering is essential. The overlooking of this important factor, combined with growing them in a hot stuffy atmosphere, is undoubtedly the principal cause of failure in so many establishments. The temperature in which they thrive varies from 55deg F. to 65deg F., according to the season of the year, and a little top ventilation ought always to be given whenever the weather is favourable. Shading must be applied through the summer months, and the under surface of the leaves be sprayed occasionally to encourage clean growth, as scale and red spider sometimes attack the leaves. When the short, stout pseudo-bulbs are fully developed less water at the root and drier surroundings should prevail. Then the spotting of the foliage will be partly, if not entirely, prevented.—T. ANSTISS.

The Future of Orchid Collecting.

Mr. John E. Lager, in the "Transactions of the Massachusetts Horticultural Society," says that the prospects for future orchid collecting are not bright; the constant hunting for these plants recently has led a number of natives to embark in the exportation of orchids, which is in itself nothing wrong; but unfortunately it is done in many instances by individuals who do not have the least knowledge of plants, or of how to do the work right. The result is that the last year alone several hundred boxes (of *Cattleyas* mostly) arrived in New York, the most valuable part of which was the boxes; the plants, through careless handling in every way, were ruined completely. This in one year does more harm than the collector would do in ten years.

From Brazil now comes information that *Cattleya labiata* is

getting scarce; a plant that we were led to believe would last to the end of time, and before long I fear that we shall hear the same complaint from other quarters.

A Horticultural Retrospect and Outlook.*

(Concluded from page 332.)

Owners of gardens began at this time to take a more knowledgeable and practical interest in their gardens, and synchronising with this, leading nurserymen had men over the world searching and sending home a great variety of beautiful plants. Many owners took the reins into their own hands, and with the imported material at their disposal, with the good judgment and taste they possessed, pleasure gardens have been made—I won't say more beautiful than before—but a great deal more extensive and more varied than before. As I have made some reference to French flower gardens, I would like before leaving this part of my subject to say, even though comparisons are odious, that within the past few years I have had the privilege of seeing Paris gardens at their best, both in the spring season and summer season, and have no hesitancy in saying our British public gardens and private gardens are a long way ahead of them. On the occasion of my spring visit to Paris, coming back I had a look at Hampton Court and



Odontoglossum Gladys.

several London parks, and then a day or two after arriving in Edinburgh, and looking at Princes Street spring garden, I had seen nothing like it for massive and effective bulb flower arrangement.

I have said that, during these decades mentioned, the great benefits, privileges, and influences attached to horticulture have been transferred from the comparatively few to the million. Public parks and public gardens are beautifully laid out in every town and city of any size in the Kingdom, with thorough, skilful, practical gardeners superintending them, and as this already large field for practical gardeners will be much extended in the future, young men following after the profession should make it an important outlook in their career to improve their education, fitting them to cope with the much more business habits and much more difficult and learned problems they would have to deal with as city gardeners, than in the general private garden as head gardener. Many of these city gardens, in addition to the beautifully laid out beds and borders, have large glass houses, or what may be termed winter gardens, in which the citizens can see in mid-winter and the cold times of the year, plants and floral displays, affording to delicate persons a healthful delight walking in a temperate atmosphere amidst Nature's beauties, whilst outside there may be the bitterest of north-east winds. There is probably no city in the kingdom that has been more favoured with groups of glass houses or winter gardens attached to the respective parks and

* Mr. Whytook's presidential address before the Scottish Horticultural Association.

gardens, than the city of Glasgow, and as almost none of these glass houses or winter gardens were in existence when the present superintendent of public parks and gardens, Mr. Whitton, was appointed to his office, it would seem that this very able gardener, by his initiative and pointing the way, either induced or impressed liberal-minded Glasgow merchant princes to give large sums to build these glass houses, and also to make additional gifts of beautiful pleasure grounds—to wit, one of the latest gifts, Rouekin Glen.

It is somewhat remarkable that whilst all this has been accomplished in Glasgow in the decades under survey, that even before the beginning of the seventies there was a strong agitation, and much letter writing in "The Scotsman" by horticulturists and others, the late Mr. William Thomson being a leader amongst them, to make a winter garden in Edinburgh suited to its environments, and capable of affording to the citizens the privilege of walking in a temperate atmosphere amidst plants and flowers during the cold months of east winds that Edinburgh more than most cities is afflicted with. And yet there has not, up to the present, been provided in Edinburgh any groups of glass houses or winter gardens. Should one or more rich citizens wish to leave a large sum of money to benefit and to elevate their fellow creatures, by giving it to the two following objects connected with horticulture, namely, providing a large glass house or group of glass houses for a winter garden, and providing a large hall and library, where all who have any interest in horticulture could come to a centre meeting for mutual benefit, they would confer on the citizens of Edinburgh a great gift, second to none.

HORTICULTURAL BUILDINGS.

Now, during the decades we have been surveying, horticultural building has been like other industries, it has had its periods of great production—over-production if you like—and periods of stagnation or depression. There is a depression existing in horticultural building at present, and it is said to have begun with our present Government getting into office. That is something for us to take note of. But we, as practical horticulturists, must admit that the horticultural builder has made an enormous improvement in constructing glass houses, as they are now so light and yet so strong. They have also, when allowed to carry out their latest improvements, effected a marvellous economy in heating, and from our increased knowledge regarding the temperature plants can be grown in, the steaming hothouses, or so-called stoves, into which many owners of gardens could seldom enter, have given place to a very much increased quantity, and very much larger, cooler, and more enjoyable class of houses. In these cool houses we see very many of our most beautiful orchids, wont to be grown in steaming hothouses.

At the beginning of this period, which created such great changes in horticultural pursuits, there sprang into prominence the greatly improved cultivation of a flower, and has gone on increasingly ever since, and which has done more than anything else to bring the privilege of enjoying flowers within the reach of the humblest in the very dead of winter—the Chrysanthemum. Edwin Molyneux was the pioneer in this great change, and now, after thirty years, he cannot but feel proud in seeing in nearly all the large towns and cities in the kingdom flourishing societies, carrying out large flower shows of Chrysanthemums, contributing pleasant enjoyment to millions of people in the dead of winter. Our own society has now for a good many years pre-eminently conferred on the citizens of Edinburgh a very great privilege by the second-to-none shows in the Kingdom it has provided for them. I am thoroughly convinced, however, that municipal authorities in the cities in which these winter shows are held do not do all their duty towards such a boon to the citizens when they give a few pounds towards some leading prize, and one or two of them put in an appearance at an annual meeting. They should rather invite horticulturists to come to their city to make a show, offering them a suitable place to hold it free of cost, and give all the aid they can. There is no better entertainment given in Edinburgh than a flower show combined with first-class music, and it is provided by this society to the public at only a fourth of the charge made for any other good entertainment. I do not think there is a body of men but horticulturists who would think of carrying out a scheme of entertainment for the public involving a total sum of nearly £1,200, and after clearing all expenses had only £3 to themselves—not a decent refreshment for all their trouble.

THE OUTLOOK.

What I have been trying to show you, whether I have succeeded or not, is that during the past twenty years, in the enormous increase in our industrial and mercantile energy and a corresponding enormous increase of wealth, horticulture has been equally energetic, ramifying through it all. The people generally—not the few privileged ones as it was before—have now their splendid pleasure grounds and beautiful gardens of their own to walk in and enjoy when they please, and they can buy incomparably better fruit, flowers, and vegetables than could be got thirty years ago, and at low prices.

And the question now is, as it ever is with the present, What is the outlook horticulturally? There is admittedly a depression at present, but there is no indication that the progressiveness of the nation has been arrested, and we are justified in looking at this depression in the light we have experienced others before, that in the course of another decade our industrial and commercial enterprise will have increased enormously, and the wealth of the nation correspondingly too. We have been hearing for some time from a good many quarters that commercial horticulture is done; that there are too many in it; and competition is so keen there is not a living to be had. In all industries there are occasional times of over-production, and we have been hearing this story oft repeated down through the years, such and such a trade is done, it is no more good; but after a given time we see that a very large number have not only made livings, but have made fortunes.

PUBLIC PARKS.

Commercial horticulture will have a great future, but with its expansion, specialisation, which has been going on for some time, will grow increasingly, and so will be seen a host of horticulturists, each devoting his whole energy and skill to one or two subjects, producing the very best with a moderate profit commensurate with a good article. And I think in private gardens there is an increasing desire to get the best of things, which vendors will see it is their best interest to supply. People's gardens, parks, and pleasure grounds we may feel certain will go on increasing. Bowling greens, which were formerly only an adjunct in a gentleman's pleasure ground, are yearly multiplying as adjuncts to the people's pleasure ground. This is in the right direction. Public gardens of small area in the thickly populated parts of our large cities suffer much from the smoke nuisance, and until scientifically abated, this nuisance will continue. Garden cities, or shall we say vast suburban areas, devoted to houses for people of modest incomes, having gardens attached to them, are coming in the future. But what will really be wanted for large cities like Edinburgh and Glasgow? The latter is in some measure attaining to it—some very large area, like the Phoenix Park, Dublin, or the Bois de Boulogne, Paris, provided by the Government, not by the municipal authorities; an area with a good deal of woodland in it, open spaces dotted with shady trees, some miles of good roads intersecting the whole, and within a short drive of the city.

What is the present condition and outlook of the professional gardener as compared with what it was previous to or at the decades I have been discussing? I unhesitatingly assert that in a private garden worthy of the name, the gardener has conditions, I mean means and appliances, incomparably better; that he is producing a great deal more from a given area, and is doing it at considerably less expense. The skilled science in horticulture has increased very much. As I have already stated in this paper, the constant, keen observation of anxious intelligent men during the past thirty years has taught us much improved and, at the same time, less costly methods. A great many of our private gardens have been made semi-commercial gardens (the agricultural depression is given as a reason for this). This system all through has been a source of great vexation, first to the market grower, because he has to sell his produce at a price to afford himself a living, against a rich land-owner who avowedly says he does not care what price is got for it as long as it is nominally sold. It is most vexatious to the gardener, tending to make him starve his employer's household in order that he may show a respectable amount in sales. This is a system of things that ought to be stopped.

THE B.G.A.

An association has been formed to raise the status of the gardener and to secure to him a higher wage. I have already defined to you what I consider to be a true genuine gardener. He is in every true sense a gentleman, and if he is worthy of respect he will be respected. In regard to wages I have no faith in a combination of head gardeners trying to raise their wages. My own experience, and what I know of head gardeners generally, leads me to say, if a head gardener in a responsible position is worthy of a good wage and asks for it, he will get it. I succeeded to a head gardener, who had held the position for six years, at £52 a year. I was in that place twenty-one years, and for fifteen of these I received £150 a year, beside house, cow's keep, and other perquisites. No combination will prevent men offering their services as head gardener cheaply, nor prevent owners of gardens employing cheap head gardeners. A very flagrant instance of this happened this year, and it is not old yet. The council of the city of Belfast required a professional gardener to superintend the city parks and gardens, including the botanic gardens. An employee in the parks offered his services for £2 a week, and was accepted. My impression is that notwithstanding the seeming present depression, and the plethora of men offering themselves for head gardeners, the noble art of gardening will go on flourishing better than ever it has done.

NOTES & NOTICES

Wakefield Paxton Society's Dinner.

The annual dinner of this society will be held at the Woolpacks Hotel, Westgate, Wakefield, on Wednesday, the 29th inst.

Oxfordshire School Gardens.

Mr. S. Heaton, instructor in horticulture to the Oxfordshire County Council, has again issued his report on the school gardens of the county. These gardens are established at thirty-three places, and the reports on the vegetable crops, and on soils, weather, diseases, insects, &c., are concisely supplied in tabular form.

Paris Rose Show.

An exhibition of the new Roses of 1907-8 will be held at the public Rose garden in Paris the first two weeks of June. Invitations have been sent to all rosarians obtaining new varieties to send plants for competition, which will receive proper care and be judged during the exhibition by a competent jury appointed by the municipal authorities of Paris.

Notes from Wroxham, Norfolk.

Up to date (20th) no amelioration has taken place in the weather. The whole of last week was very cold, with high north winds blowing almost every day and night. Such weather must be trying to many things now on the point of beginning new life again. There being no rain, the withering nature of the cold winds is much more felt. Newly-planted shrubs have felt the nip somewhat severely. Yesterday and to-day snow showers have been falling intermittently. To-day does not show great promise of an early change. The Norwich Flower Show is to be held on Saturday, April 25.—D. C.

The Last City Garden.

The last of the private gardens in the City of London is about to disappear. The house to which it is attached—No. 4, Crosby Square—is to be pulled down, and the whole site offered for sale for the purpose of erecting offices upon it. Within a stone's-throw of Crosby Hall, the house and garden have not long survived that historic structure. The only other garden in the City belongs to the Bank of England, and can scarcely be considered private property. In a little book, published in 1895, entitled "Rambles in Old London," by E. S. Machell Smith, the following passages relating to this historical house occur:—"Crossing over the road, we went down a long, narrow, paved passage, which leads out of St. Mary Axe into and through Crosby Square. We had heard that at No. 4 in the Square the last of the old City gardens belonging to a merchant's house might still be seen. Accordingly on coming to the number, we summoned up courage to enter. Catching sight of the trees through the half-glass door of an office straight in front of us, we walked in and asked the clerk seated at his desk if we might see the garden. One of the heads of the firm came forward and courteously offered to show it to us, adding that many Americans came to see it, but scarcely any English. It is a dear old-fashioned-looking place, with a fountain in its midst, surrounded by pretty shaded trees, just then coming into leaf, and must be a delightfully cool retreat in the hot weather. One of the walls is covered by a large Fig tree, from which they gathered several ripe Figs during the warm summer of 1893. The garden formed part of the grounds belonging to Crosby Hall, and appears in Strype's map of 1721, even the basin which contains the fountain being strictly marked. Dr. Adler Nathan lived here for some years, from 1847, and there is still a Jewish synagogue next door. We went all over the house, which is most roomy and comfortable, and possesses a very fine old staircase." The house is at present in the hands of house-breakers, and along with the site is to be sold at the Mart on May 13. The Fig trees mentioned still cling to the wall, but the fountain in the centre has been drained, and is now almost

filled in. With builders' implements lying around, the garden has lost almost all its original characteristics.—("Daily Chronicle.")

Appointment.

Mr. Wm. Richardson, for the past four and a half years foreman in the Stoke Park Gardens, Guildford, Surrey, as gardener to Mrs. A. de H. Larpent, Holmwood, Lexden, Colchester, Essex.

Mr John Leslie.

We are pleased to learn that, on leaving Pitcullen House, Perth, to become head-gardener at Oxley Grange, Bushey, Herts, Mr. John Leslie, who has won distinction during the past twenty-four years in Scottish gardening circles, was recently presented by his friends and admirers with a framed photographic group of his acquaintances, and a purse of sovereigns. Dr. Thomson, rector of Perth Academy, made the presentation.

British Gardeners' Association.

At the last meeting, held on April 14, twenty-four new members were elected, bringing the total up to 1,211. The secretary was deputed to address a meeting at Blackburn on the 15th inst. The draft report of the annual meeting was considered and amended, as was also the report of the sub-committee on examinations. A reference to the conditions of employment at Kew was made, and will be considered by the executive council when the alleged grievances are submitted in writing.—J. W.

Plan-drawing Competition.

A prize for the best plan for laying off a piece of ground, eight acres in extent, offered by the Royal Caledonian Horticultural Society, brought nine competitors at the show last week, being three more than last year. These were considered by the judges to be of very fair merit. The competition was confined to journeymen gardeners. First place was awarded to Mr. J. W. Forsyth, Durris House, Drumoak; second to Mr. D. T. McKinlay, Palace Gardens, Dalkeith; and third to Mr. J. M. Webster, Bothwell Castle, Bothwell. It is rather an interesting coincidence that the second and third prizes should have been gained by the same men in two successive years.

United Horticultural Benefit and Provident Society.

The quarterly meeting of this society was held at the Horticultural Hall, Vincent Square, Westminster, on Monday, April 13, Mr. Charles H. Curtis in the chair. Five new members were elected, making a total of thirty for the quarter. Sickness has been heavy, but rather less than during the first three months of 1907. Several cheques were passed, being payments to members over seventy years of age, and others, including a payment of 2s. to a member who lapsed thirty years ago. Members over sixty years of age may now withdraw the interest on their deposit account, and several avail themselves of this privilege, as it enables them to pay their subscriptions more easily. The committee trust that many young gardeners will join the society during the year. Rules may be had from the secretary—W. COLLINS, 9, Martindale Road, Balham, S.W.

South-Eastern Agricultural College, Wye.

A meeting of the Governors of the South-Eastern Agricultural College was held at Wye, Kent, on the 13th inst., Lord Ashcombe presiding. The resignation of the vice-chairman, Mr. George Marsham, was accepted with sincere regret, and Mr. F. S. W. Cornwallis was appointed in his stead. The Principal (Mr. M. J. R. Dunstan) reported an attendance of 122 students for the spring term, and that 123 had already entered for the summer term, commencing on June 1. The establishment of professorships of agriculture and agricultural zoology in connection with London University is under consideration. Members of the college staff are actively engaged in research work in mycology, soil bacteriology, animal digestion, frost protection of orchards, and other problems of agricultural and horticultural importance. A troop of the East Kent Yeomanry has been formed of the college students, who will go into camp with the regiment at Aldershot.

Co-operative Fruit Grading.

The report of the Hereford Co-operative Fruit-grading Society for the past year has been published. The total sales of Apples amounted to £1,620, as against £3,749 the previous year, and the amount paid for fruit was £1,280, as against £2,551. The decrease was accounted for by the Apple crop being very small. In the agricultural supply department the sales to members increased from £2,228 to £3,623.

The Flower Trade in Paris.

The French capital is one of the greatest markets in the world for flowers and plants. The central market, ten flower markets in different quarters, 500 flower stores and numerous little stalls, supply the Parisians with their blossoms. The local markets are held twice a week, and the Quai Aux Fleurs alone receives 200,000 flowering plants a day. These plants are grown mostly in the outskirts of the city, and special plants and flowers are sent from the south, from Nantes, Orleans, Angiers, and even Belgium and Italy. It is estimated that 30,000,000 potted plants are used annually in Paris.

Illness of Prof. John Craig.

Nurserymen at large will regret to hear of the illness of Mr. John Craig, Editor of "The National Nurseryman," and professor of Horticulture at the College of Agriculture, Cornell University, Ithaca, U.S.A. For some time past, Prof. Craig has been suffering from acute stomach trouble. In hopes of obtaining relief, he sailed with his wife and son for Egypt on the first day of February. The voyage was rough and uncomfortable for the sick man, who suffered considerably. He had thought that the fine winter climate of Egypt and the change of scene would benefit him. It was found necessary, however, to give up this trip. Some days were spent at Genoa, Italy, in recuperating from the effects of the voyage. At present, Prof. Craig is at Lausanne, Switzerland. The services of a skilled surgeon have been secured, and an operation will be performed to bring relief and cure to the patient sufferer.

The Worshipful Company of Gardeners.

Desirous of following a pleasant custom already enjoyed by the Fruiterers, the Master, Wardens, Assistants, and Commonalty of the Worshipful Company of Gardeners have petitioned the Lord Mayor to permit them to present annually to the Chief Magistrate for the time being a basket, containing flowers, vegetables, and herbs, in grateful remembrance of the Recorder's warrant, issued by order of the Lord Mayor in 1632, for the encouragement of the Guild in promoting horticulture. It may be mentioned that in 1891 a Livery was granted to it, and in 1905 the King confirmed the grants of armorial bearings made by his predecessors in the seventeenth century. The prayer of the petitioners has been cordially granted by the Lord Mayor, who has fixed July 1 for the first presentation. The Gardeners' Company ranks sixty-fourth among the City Guilds, and has met with varying fortunes during its career, but it appears never to have possessed a hall. It was revived some years ago by several enthusiastic members of the calling, and is now in a flourishing condition.

Horticulture in Hereford.

At the quarterly meeting of the Herefordshire County Council, it was reported that agricultural instruction was being given in the county with success, new features introduced being cheese-making and stock judging. The private advice and assistance rendered to farmers and gardeners was one of the most important and useful branches of the work in which the agricultural staff was engaged, and it was gratifying, the Education Committee reported, to note that advantage was taken to a greater extent each year of the opportunity afforded for securing expert advice. The subjects covered a wide range, two of the most common being the valuation and purchase of manures and the spraying of fruit trees. Other matters of frequent inquiry were cider-making and bottling, fruit bottling, selection of varieties and planting of fruit trees, and pests of fruit trees. It had been decided to carry out trials in the manuring of meadows, the manuring of the Mangold crop, inoculation of soil or seed with nitrogen-fixing bacteria, and fruit tree washes.

Notes on Bedding.

On no two seasons in succession should the arrangement of certain beds or borders be the same, therefore a note on actual facts as to those seen is seasonable, and I hope beneficial. In a circular bed, 8ft in diameter, at Aldenham last year, the white *Sveinsson* was a huge success. The plants had been given sufficient space to avoid crowding, thus the effect was fine, seeing that red *Alternanthera* was employed as a carpet underneath as a contrast.

Fuchsia Madame Cornillon growing over the silver-edged "Geranium" Flower of Spring was effective, the red sepals of the *Fuchsia* showing up over the leaves of the "Geranium." Madame de Bussey *Heliotrope*, in a circular mass, was most enjoyable; and so it is when the groundwork is composed of Harrison's Musk, the two perfumes making such an agreeable combination.

Calceolaria auxplexicaulis never had a better season, the moist period suiting the growth of the plants to a nicety, and with good growth freedom in flower is sure to follow. Ivy-leaved "Geranium" *Souvenir de Charles Turner* in a mass was here and elsewhere an object of beauty; its colour is so cheering.

"Geranium" Paul Crampel, in a circular mass, well depicted this extra fine scarlet, with its shade of orange colour, as quite one of the best for massing. A mound of *Verbena* Miss Willmott, with its rosy-pink hue, formed a delightful contrast with the silver foliage of *Abutilon Suavitzi* planted thinly. *Mesembryanthemum cordifolium variegatum* formed an agreeable groundwork for a huge mass of *Lobelia cardinalis* Queen Victoria, 6ft high. Another mass of this showy autumn-flowering subject was growing over *Antennaria tomentosa*. Never have I seen this *Lobelia* with more luxuriance of stem, leaf, or blossom. *Lantana purpurea* was thinly planted over a mass of white *Verbena*, producing a telling effect. This is one of the best of continuous summer and autumn-flowering plants.—E. MOLYNEUX.

Entomological Notes.**Early Honey-seekers.**

Hard are the epithets sometimes hurled at the average British Spring by those who love not its rough winds, its showers of sleet or cold rain, its occasional fogs and frosty nights. Yes, even in the Springs that are least favourable we get some pleasant days, when we forget the disagreeable past and look forward hopefully to the approach of summer. There are evenings in April or May when we may take a short stroll round the garden with no sense of discomfort, and the freshness of the Spring air suggests the awakening of new life. Insect forms, which for months have been lacking from the garden, appear in the twilight, winged, or are crawling upon the fresh vegetation, not perhaps with good intentions. Moths, a few of them bred in or near gardens, but most visitors from a distance, come flying round the early flowers, intent upon honey while it is yet rather a scarce article. Other strollers are seeking for "palms" at Easter, where Sallows and Willows grow.

We may allow these moths to regale themselves undisturbed, even if a few of them are likely to be parents of troublesome caterpillars, nor can we, in fact, easily identify them unless we have a lantern. This difference, however, most can see easily, that some of the honey-lovers have slim bodies, and others are rather stout. Should it be quite dark the eyes of some of the fat-bodied moths gleam like tiny stars. We might happen, on a mild evening, to get a sight of a humming-bird hawk moth, for this lively insect has been noticed in nearly every month somewhere. Any specimens about now have hibernated, and they announce their arrival by a sonorous hum. The early grey moth (*Xylocampa lithorhiza*) has received its popular name from its early appearance, for sometimes it braves the March winds, though April is its usual month. Its colour is grey, with curious black markings. The body is long and crested. The caterpillar feeds upon the Honeysuckle, wild or cultivated, during July and August. It is rather handsome, and not seriously injurious to this favourite climber. After wintering in outhouses or hollow trees, the herald moth is appearing to welcome Spring. We soon recognise him by his hooked wings, having orange and light grey lines upon a brown ground. In colour the caterpillar is of a tint which resembles the leaves of the Willow, and easily escapes notice, probably even from birds. When full grown it spins a delicate white cocoon upon a twig of its food-plant.

Several of the thorn moths have bodies rather stoutish for the tribe (Geometers) to which they belong, and are able, therefore, to store more honey than their slighter brethren. Some of them are late visitors to the Ivy bloom. Spring flowers naturally attract them, and so do lights. All these moths have a propensity for sacrificing themselves at gas lamps. They have not

received their name from any thorniness about them, but the caterpillars have singular humps or protuberances, which make them resemble bits of twig. It is probable that by this mimicry they escape birds. The April, or early thorn moth, is a familiar species (*Selenia illunaria*). It is so styled from a moon-shaped spot on the pale brown wings, which are angulated. Most years there is a second brood in the summer. About the country we find the brown mottled caterpillars upon the Willow. Coming into gardens, the moths lay eggs upon a dozen or more different shrubs and plants. The purple thorn moth (*S. illustraria*) is a beautiful species, of a rich brown colour, with reddish pearly markings; it also bears the half-moon, and comes to flowers early in May. Its caterpillar occurs upon Birch or Oak about July.

A mild March will bring forth on the wing specimens of the streamer moth, or *Anticlia devivata*, so named, I suppose, from the wavy or stream-like markings on the fore-wings. Its funny little caterpillar feeds on the wild or garden Rose in May. The skin has a tight appearance, as if pinched in, and the body is of a delicate green, showing reddish spots, and the legs are pink. Gardeners or birds pick off some of them, no doubt. A spring visitant to garden flowers is the early tooth-striped moth (*Lobiphora lobulata*), which has emerged from the chrysalis in April. Its general colour is dull grey or smoky, but if we chance to come upon one just emerged and drying its new wings on a twig, we may notice these are tinted with a delicate green, which soon fades. The caterpillar is of varied colours, and eats the common Honeysuckle, also Poplars and Willows. Then we have a group of moths which are known as the "carpets," though really there is not much resemblance between the patterns of their wings and the carpets commonly seen. Several of these fly in the spring, resting by day on walls or amid shrubs. We may take as an example the garden carpet (*Melanippe fluctuata*), an abundant species in May, also in the autumn. It is a dull coloured insect, but rather rapid on the wing. The caterpillar is brown or green, pointed at each end of the body, and distinguished by what an entomologist calls "arrow-head markings," which occur upon some caterpillars. This is found both in the flower and kitchen garden, being partial to all the Cabbage tribe, and to the Tropæolums, also to other low-growing plants of the borders; but it does not disfigure them much in the general way. The caterpillar of the silver ground carpet attacks Primroses and Auriculas in the spring, the moth appearing in autumn.

Most gardeners know the caterpillar of the angle shades moth (*Phlogophora meticulosa*), a smooth, velvety creature, olive brown or green, rather leech-like in shape, and if annoyed it rolls into a ring. Some of them are feeding all through the season upon a variety of garden plants. The last of them in autumn often occurs upon the Chrysanthemum, then hibernates, and finishes its growth on the Primrose, or other low plant. Passing rapidly through the chrysalis stage, it is able to appear winged early, and join the company of May moths. It is one of the easily recognisable species, owing to the scalloped and arched wings, with their distinctive pattern upon a greenish brown. After feasting at flowers, this moth may be noticed by day resting upon fences. The sturdy, stout-bodied satellite moth, or *Scapelosoma satellitia*, comes after honey early in April. It is a common moth throughout our islands. It is a dull brown insect, but conspicuous by three white spots on the forewings—one large, two small. I suppose these must have suggested a name which alludes to the moon. Sometimes, however, the spots are bright orange, or lacking. If the caterpillar were common in gardens it might be a useful one, but it mostly lives upon Beech, Elm, or Oak. Though it eats leaves now and then, more frequently it preys upon other caterpillars, hiding in ambush to pounce upon them.

Some of the rather grey quaker moths (their appearance seemingly having suggested their name) bestir themselves to greet the Spring. The small quaker (*Teniacampa cruda*), which has its general grey relieved by black spots and paler grey, comes in small swarms to the flowers of April, when they are out. But the coldness of 1908 is keeping this species and many others still in the chrysalis stage. More abundant is the common quaker, or *T. stabilis*, greyish brown, having a tinge of red, and some black dots. It spends nearly eight months as chrysalis just below the earth. Its caterpillar is often seen in July feeding upon various trees. It has a large head and delicate velvety body of bright green; no doubt a morsel prized by insect-loving birds. When alarmed it suddenly drops from a twig, and twists the body violently, perhaps as a protective measure. In the same genus, but not a "quaker," is the Hebrew character moth (*T. gothica*), of lovely tints, in fact, rather a handsome insect. Among the markings is a figure which gave rise to the name. The body is well clothed with woolly scales, which partly protect it from the cold winds it has to encounter during its excursions amongst flowers. The caterpillar is pale green, adorned with numerous stripes, and occurs on many garden trees or shrubs, such as Hawthorn, Poplar, and Lilac.—ENTOMOLOGIST.

Stove and Greenhouse Plants.

Acokanthera (Toxicophlæa) spectabilis.

This is described by Nicholson under the name of *Toxicophlæa*, but this fine old plant is also known as *Acokanthera spectabilis*. It is a native of Natal, and bears stout, elliptical, leathery leaves in the axils of which are produced corymbs of flowers, forming, when expanded, a deep dense spray. The general appearance of the flowers remind one of the common white Jasmine, and these being sweetly scented, are an interesting and welcome feature for a warm greenhouse in spring. It succeeds in a winter temperature of 50deg to 55deg F., though when in flower, which is generally during March and April, these are somewhat impatient of draughts, and for this reason



Acokanthera spectabilis.

its value for house decoration is limited. The plants grow freely in a light rich soil, consisting of loam, peat, and sand, while the occasional assistance of weak liquid manure is of inestimable benefit toward full development. *Toxicophlæa spectabilis* grows to the height of 4ft to 6ft, and is propagated by cuttings inserted in pots of sandy soil and placed on a brisk bottom heat.—THOMAS SMITH, Walmsgate Gardens, Louth, Lincs.

Centropogon Lucyana.

Where odd plants are required to make the greenhouses interesting this is indeed a good subject. It belongs to the Campanula order, and is easily cultivated. It should be propagated annually, and grown on in ordinary good soil. The flowers, which are borne in panicles at the points of the shoots and along the shoot at the axil of each leaf, are both curious and showy, the colour being a bright rose. It can without any difficulty be in perfect flower for Christmas, if grown in a temperature of about 60deg.

Thrysacanthus Schomburgkianus.

This is an old favourite, but seldom seen nowadays, yet its merits are of some value. It is of the easiest culture, and should be propagated annually, as the old plants get leggy and un-

sightly. This plant has a peculiar habit of flowering, the inflorescence being a long pendulous graceful spray. The flowers are red, and tubular in shape. It is well suited for a hanging plant, and is best grown in pots, but should be hung up when the sprays begin to develop. Under good cultivation these sprays will attain a length of from 3ft to 4ft. The plant starts to flower about February, and continues in bloom until April. Although grown usually as a stove plant in England, it requires no special treatment, and thrives well in a temperature of 55deg to 60deg.

Mesembryanthemums.

For purposes of accommodation we will call the Mesembryanthemums, or those of which we shall briefly write, greenhouse plants. They can very well be cultivated upon a greenhouse stage. How remarkably varied they are, and so very curious. Upon this page appears the figure of one species of the genus, which forms mere flattened, succulent growths. So very like unto smooth river pebbles are they, that it requires the keenest scrutiny to tell which are stones and which are plants. Perhaps we ought, in the fashion of the daily papers, to have marked the plants with a cross. There are only two plants in the pan here shown—one toward the upper edge (the largest piece, near the label), the other nearer the middle.

But the genus contains a number of types, the half-hardy



STONES OR PLANTS?
(*Mesembryanthemum truncatum*.)

creeping sorts like *M. pyropeum* (syn. *tricolor*) and *cordifolium variegatum*, forming one section; *M. crystallinum*, the Ice-plant, another; and the larger, more permanent tribe embrace such as we mentioned on page 330, to wit, *Mesembryanthemum Bolusi*.

Zonal Pelargoniums.

I think a few hints on the growing of zonals will serve to help some of the readers of the *Journal* in regard to getting the best results. I think there is nothing better for edging Chrysanthemum groups, either in the conservatory or show house, and also very useful for trays. The best time for putting in cuttings, if you want them in flower early, is about the end of January. Seven or eight cuttings in a 48-sized (5in) pot, one part loam, one part leaf soil, with enough silver sand to make it porous, placed in a heated pit with a slight bottom heat, will serve. A great mistake made by many is in watering as soon as the cuttings are put in, whereas they should be left quite four or five days before being watered. When well rooted pot off into 60's, and when they have made about five leaves pinch the tops out, and as soon as they are filled with roots pot off in the final pots, which should be 48's (5in). When rooted thoroughly give a little weak soot or cow manure water once a week; and should they require pinching again do not fail to do so. Some varieties do not require pinching more than once, but a grower can always judge that for himself. Gradually harden them off into cold frames and place them outdoors at the beginning of June.—T. F. S.

Vegetables.

The Quality of Potatoes.

Chemists have given no little attention to the study of Potatoes, both as a human and as an animal food product. Recognising that the food value of Potatoes is almost entirely dependent upon their starch content, extensive analyses have been made to determine the amount of starch in the tubers, and its proportion to other substances and to water. The protein, starch, and fat contents, and the presence of other substances which influence colour and flavour, have also been investigated.

These studies have been of great value to the Potato interests, for they have not only shaped and added to our knowledge of the Potato tuber as a plant organ of reproduction, but they have stimulated efforts to improve the Potato plant to the end that it may yield more abundantly, and give a more acceptable product for human food. From all of these points of view great advances have been made. Through the knowledge of the Potato and its chemical composition, growers have been educated to better practices and methods of tillage, storage and marketing.

It is upon the consideration of starch content in the tuber and other chemical properties that the estimate of quality has usually been made. The standard of composition is fairly adequate when only the utility of Potatoes for the manufacture of starch is concerned, and perhaps, also, when Potatoes are used only for live stock food. But the proportion of the country's production of Potatoes for starch manufacture, or even for cattle food, as compared with the quantity produced for human food, is very small. From the view point of the starch manufacturer, the starch content of the Potato would be a good and satisfactory basis for estimating the quality; the same may be said of those used for stock food. It is a fact, therefore, that the starch content must be considered in any estimate of the quality of Potatoes, for when starch is deficient, or falls below a certain standard, namely about 17 per cent., the indications are that the tubers have not properly developed, have not ripened, or they have grown under adverse climatic soil or manure conditions. Such Potatoes prepared for human food will not meet the standard set for superior table tubers. An analysis of some of the best cooking varieties of Potatoes has shown a variation in starch content from 16 to 23 per cent., most of them ranging from 18 to 20 per cent.

We are aware that the culinary value of Potatoes varies with the tastes and estimation of different persons. In England and in the United States a Potato of a starchy flavour, white and floury in colour, and mealy when cooked, is considered more desirable than one which is strong in flavour, coloured or soggy after boiling. This mealy condition is usually found in Potatoes with a starch content ranging from 18 per cent. and upwards; though such conditions may not depend directly upon starch content. In France, on the other hand, the varieties of Potatoes most esteemed for culinary purposes are those which retain their form, are yellowish in colour, and are soggy after boiling. This condition is usually found in tubers low in starch content and high in protein; that is to say, they contain from 12 to 16 per cent. of starch, and from 2 to 3 per cent. of protein, or nitrogenous substances. This may be a condition which is possessed by a particular variety, or it may be due to unripeness, or to unfavourable conditions for growth and development.

There are also trade estimates of quality in Potatoes which have no direct relation to the culinary or structural considerations. These may be classed as size, surface aspects, and shapeliness, and variety conditions. Usually the trade does not call for Potatoes of excessive size, those ranging from 2in to 3in in length, weighing from 5oz to 10oz, are most acceptable. If smaller than this, for whole boiled, they are not uniform in cooking qualities, and do not look well when put upon the table. If very large, full weight is not given when the tubers are measured in the bushel. Then, too, in preparation for cooking the large tubers have to be cut in order that they may be uniformly cooked before the small ones are over-done. A cut Potato loses more of its nutritive properties during the operation of cooking than does an uncut Potato. There is slightly more waste, also, in paring the over-large tubers. The surface aspects and general shapeliness of the tubers are perhaps the greatest considerations of the discriminating consumers.—J. J. W.

Classes of Sweet Peas.

(1.) SELFS.—Flowers with only one colour. (2.) FLAKES.—Flowers with a distinct ground colour, on which are stripes or flakes of another colour. (3.) BICOLORS.—Flowers with two colours, one found in the wings and the other in the standard. (4.) FANCIES.—Flowers of more than two colours. (5.) PICOTEE EDGED.—Flowers of one or more colours, but having an edging of a distinct colour round the standard and wings.



The Season and Its Prospects.

Comparing dates on which various kinds of trees came into flower for the past several years, I find the present year the latest by quite ten days. On looking round the garden I also find that, generally speaking, there is a most pleasing promise of fruit on all kinds of trees save Plums. These are not going to give us a very heavy crop under any circumstances. Neither did we expect a full crop after such an abundant one as that of 1907. However, varieties will differ, for although such kinds as Rivers' Early Prolific, Victoria, Bon Bouché (Gage), and that splendid new kind Reine Claude de Comte Hathem, each bore a full crop, they are now showing an abundance of healthy flowers. With reference to the last named I can speak very highly of it. I saw this fruit when it was first exhibited in London, and ordered a tree. In due course it came, and was promptly planted on a warm wall. I may say that it was a splendidly furnished tree, with some few flower buds set on a few of the small growths, and I think every flower set a fruit, which came to perfection; and since then it has borne two very heavy crops of beautiful and delicious Plums. The tree now nearly covers its allotted space, and is just opening its flowers for the fourth time in four years. There are few varieties with such a tempting appearance when fully ripe. The orange-coloured flesh is overlaid with a heavy coat of grey bloom, which gives it a very appetising appearance.

Apples are showing an extraordinary amount of healthy flower buds, but which are very late indeed, which gives one great hopes for a bumper fruit store next winter. Pears have also ample buds, except in cases where the crop was too great in 1907, which was the case on such kinds as Passé Colmar, Emile d'Heyst, Marie Louise, and Beurré Hardy. But in some cases where the crop was very heavy, the trees are again full of flower buds, viz., Seckle, Doyenné du Comice. What a splendid fruit this is! No matter how heavy the crop, the following year it will give a fair sprinkling. Louise Bon of Jersey is also showing well, although it bore a heavy crop last year. "Small fruit" (Gooseberries and Currants) are very promising.

Of Strawberries there are evil forebodings, but so far as I can judge by cutting the crowns and examining the embryo flower buds, they are quite healthy. Strange to say, the plants came through the severe weather (22deg frost) quite safely to all appearance, but suddenly lost all their foliage in March. Looking at things as they are to-day, and remembering past years similar to the present, the outlook is bright.—T. ARNOLD, April 11.

Rosala.

Kind and friendly recognition of modest effort is always most welcome and encouraging. When a veteran accords a few words of praise to a young recruit he hardly perhaps realises how helpful those words are. In giving a list of Roses (12) I am supposing a garden of perfection, or perhaps rather of plenty, where the plants are so numerous that there is never any doubt of being able to find to your hand, during the legitimate season of Roses, the exact flower required to make up a glorious whole. The Roses are not by any means all new or fashionable, but they may stand as representative, and with perhaps the exception of Catherine Mermet, they are easy to grow.

An attempt has been made to arrange the colours and sizes in the best possible way, i.e., to catch the eye of the judges, so that they may at least give the box more than a casual survey:—Louis Van Houtte, Caroline Testout, Duke of Edinburgh, Druschki, White Maman Cochet, E. V. Hermanos, Mme. Ravary, Mrs. W. J. Grant, Capt. Hayward, Duke of Wellington, Mme. Abel Chatenay, and Catherine Mermet.

Supposing the list had been an eighteen or twenty-four, Mrs. Edward Mawley, Dean Hole, and His Reverence [P] would have figured, possibly, too, Bessie Brown, if her neck were straight; and if there were a lack of blooms, Ulrich Brunner would always be relied upon to furnish a good flower, but one not of a first-rate colour. Marie Baumann used to be a great favourite, but her shape leaves something to be desired. When La France is good it is very good. Xavier Olibo is said to be too small for exhibition purposes, but the error made usually is to get blooms coarse and big—surely a mistake.

As to the choice of Roses, it is not given to all Senior Wranglers to achieve further success, and the fact that a Rose is a medallist does not prove that it is suitable for the ordinary amateur—often quite the contrary. Those persons with a short

purse and discretion have often a far better class of plants than their richer neighbours. A Rose garden has to grow; the reward is in encouraging that growth in the right direction. It is the old story over again—see what varieties do the best in the adjacent gardens; work on those lines at first; and then when time and means will allow, try experiments. It must be a very small garden not to have at least three different aspects, and it is marvellous how the colouring, for instance, will be affected by aspect. How, too, the quality will be affected by first, briar-grown flowers; second, by self-rooted flowers. There are never two seasons quite alike, so that the Rose grower may always count upon surprises.

Frau Karl Druschki is so taken for granted now as the very best white show Rose, that she is no more specified by name than Gloire de Dijon would be in a list of decorative garden Roses. She only lacks one thing, and that is perfume. As Maréchal Niel is hardly an amateur's Rose grown outside, it is not included in the list of twelve.

That our kind friend, "A. C.," may long be spared to tend, train, and exhibit his Roses is the earnest wish of—THE MISSUS.

Present-day Gardeners.

On pages 314 and 315, "K., Dublin," writes fully under this heading, adverting to an article belonging to a previous issue. It is generally recognised that more—far more—is expected of the gardener of to-day than was regarded as essential from his predecessor. The top-hatted brigade has been defunct, except in solitary instances, for many years, though a generation ago it was still possible to meet one or two individuals who thought kid gloves and a top hat *de rigueur* for the management of a garden. There appears no reason to think gardeners to-day are worse men professionally, socially, or educationally, than those who have gone before. Indeed, if a strenuous existence in the production of many things now looked upon as necessities, which in days gone by were little known, is any criterion, we have in the present generation of gardeners a distinct advance. This, too, in face of far less stable circumstances than formerly existed. That the conditions of a gardener's life are not so comfortable as formerly we have good reason to believe, and this explains in a great measure the losses to the ranks of some of our best material. Many of the ablest and best mentally-equipped gardeners pass from gardening proper to posts as instructors, or direct their efforts towards literary matters, or many of them turn in a commercial direction, and have proved highly successful. So that we may see that though numbers of such men are still engaged in gardening of sorts, yet there is a reduction from the ranks of private gardeners of some of the best material. At least, that is the opinion of—GROWER.

Yorkshire Gardeners and the Royal Gardeners' Orphan Fund.

This fund and the special appeal which is being made at the present time on its behalf in connection with the Coming-of-age Festival on May 12, should, I think, be of especial interest to Yorkshire horticulturists, seeing that the inception of the Fund was mainly due to a Yorks gardener—Mr. Clayton, late of Grinston Park. But probably many, like myself, have hitherto never given the matter any very serious thought, or it may be that we are sometimes apt to think that such institutions, having their headquarters so far away as London, have not much claim upon us here in the North. A glance, however, through the annual report certainly shows that this is not the case. I find there are in Yorkshire five children in receipt of the benefits of the Fund, viz., £13 per annum each, or £65 in all, but the whole of the subscriptions from Yorkshire are very much below this amount, and the proportion of it which comes from Yorkshire gardeners is very small indeed. I note that one town in the Midlands (not a large one) sends half as much as the whole of Yorkshire. An appeal made during the past week to three small gatherings of gardeners in this locality had an immediate result of nearly fifty shillings being subscribed to the popular shilling collection, and several volunteered to take collecting sheets for their respective districts, so I hope this amount will be considerably increased before the festival on May 12. May I suggest to gardeners in other parts of Yorkshire that, if the matter has not already been taken in hand, some such plan should be adopted, as the result, I am sure, would be a birthday gift worthy of Yorkshire gardeners, and would probably arouse an interest which would also have the effect of increasing, in future, the number of annual subscribers to this worthy object. Any living in a district where no collection is being made, who would like to contribute, are asked to send their subscriptions to Mr. Norman, The Elms, Westwood, Leeds; or Mr. Coates, Spring Bank, Headingley, Leeds; or Mr. Wellwood, Wyther House, Kirkstall, Leeds; or Mr. Waltham, Sandy Wood, Horsforth, near Leeds; or to yours faithfully—GEORGE CARVER, Chapel-Allerton, Leeds.

Pruning Evergreens.

In not a few gardens and pleasure grounds there are a number of trees and shrubs that, from want of judgment, or even of the knowledge of their ultimate development at planting time, have outgrown their limits. Thus, pruning may be regarded as distinct from thinning. Of the annual pruning of evergreens and other trees and shrubs in gardens and public parks, resulting in stiffness and formality, too much cannot be said in deprecation. But for keeping trees and shrubs within bounds on given areas, much in this respect may be excused, particularly when the subjects are employed as screens, as Holly, Laurel, and Yew. It is not of these, however, or indeed any trees or shrubs that are subjected to formal trimmings at least once or twice a year, that my present remarks are intended to apply, though if they have grown out of bounds I know of no better season than the present for cutting them into the form or dimensions desired, always allowing something for the extension of the new growths.

The subjects that may be treated safely now are Evergreen Oaks, common and Portugal Laurels, Hollies, and Yews. The former hardly submits to the same close heading back that may be practised on the other kinds named. Reducing to mere stumps is not advisable, but even in this case the limbs may be considerably curtailed, and the heads in the course of a few years will grow again into symmetrical and shapely form. The worst of heading back Evergreen Oaks is the liability of the limbs to push a number of growths from the ends, and thus impart a tufted or lumpy appearance. This may be overcome by timely attention to disbudding, the new breaks being reduced in number, leaving the most promising and best situated, the others being rubbed off while quite small. This means more light and air for the parts retained, and their consequent solidification and ripening.

Common Laurels will bear cutting down to nearly the ground, and they will push new growths from the stumps that are as transcendent in vigour and in boldness of leafage as the sparse and dwindling overgrown and straggling limbs were ungainly and indifferent in attractiveness before. In cases where they are used as facing to a shrubbery, or belting to a plantation of trees, and are of such depth as to admit of cutting down the back parts of the facing or belting, this is excellent practice, for the outside is left intact, and presents a fair face, while the others that have been cut down are making new growth, and in the course of a couple of years will be so grown that those bounding them outwards may also be cut down, and the plantation still have a fine facing.

Portugal Laurels are very liable to become straggling and thin in shrubberies, and even in open places they may put on forms that are not dense enough to satisfy the lover of symmetry and compactness. No tree bears closer cutting-in than the Portugal Laurel, but of all the sights to be abominated and despised is the annual cutting of them into pyramids and rounded mops or semi-circles. Besides, it is the best way to kill them, or at least give the fungus that does that its opportunities. Cut the overgrown, stunted, unshapely Portugal as much as you like, but do not practice this too often. The head may be cut down to a couple of feet or so, and the side branches left a foot long to form a round-headed bush or low tree, the pyramid shape being had by leaving the main stem or stems longer, and the side branches a foot to 18 in long at the base, diminishing to nothing upwards. The tree so beheaded will make the round head or the pyramid if left to itself.

Hollies very often become straggly, even badly furnished with branches and young growths. Some, indeed, grow so indifferently, even in open situations, as to be unsightly through poorness of growth. Those examples will, by judicious cutting-in, the heads being reduced considerably, quite surprise the owners by the configuration they put on, the growths being free and plentiful. Oh! it will interfere with the berry production! True, for a season or two perhaps, but then the flowering will be more abundant, and the berries that follow will be very much larger and brighter in colour. Almost any extent of heading down may be practised upon Hollies, the thing being to so prune that the head that is expected to come will be conformable with the pruned one, the branches being left so as to secure the shape desired. The pruning of Hollies may be practised up to June, but the better time is the end of April and early part of May, and where the growth has been poor, a top-dressing of short manure, or a few good soakings of liquid manure, not too strong, will ensure a more vigorous break and finer foliage. The manure should extend outwards from the stem to about as far as the branches did previously.

Yew is one of the few evergreens that will bear cutting-in to the bare trunk, and then push new growths vigorously. It was, therefore, much employed in the ancient style of gardening for verdant architecture and sculpture. Overgrown Yew hedges

may be cut back as much as desired with a certainty of new growths being pushed from the branches, the growth being freer from the older than the younger wood, therefore enough of the old branches must be left to secure the desired growths at the proper place to maintain the screen or hedge intact, and even in greenery. Allowed to take its natural shape, and when advanced to a considerable age, the Yew forms one of the handsomest of British evergreens, harmonising admirably with the Holly, the Box, and the Juniper. It is, therefore, almost sacrilegious to prune the aged Yew, yet it bears this without resentment, pushing new growths from trunks that may have endured centuries.

Box, of course, bears the shears uncommonly well, even overgrown hedges may be cut down to very near the ground with a certainty of new growths being pushed. Similar remarks apply to most evergreens. Any that are straggling, ungainly and overgrown, may be pruned or cut back during mild weather in April, and this will give time for the new growths to be made, and for their hardening, so as to endure an ordinary winter severity without serious damage.—G. HERZ.

Horticultural Biographies.

Mr. J. Mallender, Hodsock Priory.

Mr. Joseph Mallender has created a record at Hodsock Priory, where he has served as head gardener for close upon forty years. He has just retired from the position, and has been succeeded by Mr. A. J. Ford, Bigood, Essex, who comes from Lady Warwick's Horticultural College. Mr. Mallender is a Nottinghamshire man. He was born at Ranskill, and his father was an employee on the Serlby estate. It was in 1860 when Mr. Mallender commenced his gardening career at Serlby Hall under Mr. Charles Parkin, head gardener and bailiff to the late Viscount Galway, and great-uncle to Mr. F. T. Parkin, the present agent at Serlby. After three and a half years he removed into Lincolnshire, and assisted in forming the Rose garden at Brocklesby Park for the late Earl Yarborough. Having remained here for one season, he had several changes, and was appointed foreman, under Mr. Hazel, at the gardens at Firbeck Hall, then occupied by Mrs. Miles. He then removed to London, went through Veitch's nurseries, and later to Henham, Suffolk, with Lord Stradbroke. In August, 1868, he succeeded Mr. Richards in charge of the gardens at Hodsock Priory, under the late Mrs. Mellish, mother of Lieut.-Colonel Mellish and the Misses Mellish. At Hodsock Roses have been a feature, and that feature has been enlarged and beautified by Mr. Mallender's efforts. As an exhibitor Mr. Mallender has been successful, having won several silver cups and medals taken at shows all over the country. About thirty years ago he began to dabble in hybridising Daffodils, and being very fortunate in the first attempt after raising the celebrated Daffodil known as Hodsock Pride, it gave him an impetus, which led him on to further success. At the present time he is the owner of a great many very celebrated seedlings, one known as Agnes Mellish, another as Mrs. Sybil Foster, the famous little Daffodil known as White Elf, and others too numerous to mention. He, however, hopes to bring one out called Mallender's British Lion, one of the largest Daffodils of its type in cultivation.

Mr. Mallender gained his first champion medal in Rose growing at Sheffield, and obtained his principal prizes from the meetings of the National Rose Society, of which he was a member. He gave it up about five years ago, and devoted his whole attention to Daffodil growing. Mr. Mallender's skill and enthusiasm as a cultivator of both Roses and Daffodils are well known in North Notts., where amateurs are ever seeking his advice concerning varieties or methods of culture. Of late years he has lectured on Daffodil and Rose culture during the winter season, and in the spring and summer has been able by the generosity of his employers to show anyone interested in his favourite subject the success that attended the methods he advocated.

A large company assembled at the Top Schoolroom, Blyth, on Wednesday evening, to do honour to Mr. Mallender by presenting him with a marble timepiece, chair, and purse of gold. These were accompanied by a printed address.

In conclusion, to what has been said above, and to the kind and hearty good wishes that were extended to Mr. Mallender and his daughter last Wednesday week, we would add our own tribute of respect and of appreciation of Mr. Mallender and his work. His has been a pleasant and a useful career. Ever since 1860, we believe, he has read the *Journal of Horticulture*, and during some of the years since then he was a valued contributor. We trust he will still continue his connection, as a reader if not as a writer, with our paper.



The Cedar.

The oldest and largest Cedar in Britain is, or was till recently, the one fronting Brierley Hall, near Bradford, which is presumed to date from 1705. Measured a few years ago, the circumference was a trifle over 15ft, and the height about 60ft. Though Dr. Richardson thought our English Cedar might attain the age of 700 or 800 years, none appear likely to reach such a figure, as 200 years or a little more seems all they can attain to in our climate.—J. R. S. C.

Easter Baskets.

In the making of baskets of flowers for Easter the chief aim of the florist should be simplicity of arrangement combined with strict harmony in shades of colour. The man who can give the true harmony of shading along with the free setting of the flowers is an artist. Of course, the predominating colours for Easter work are of the white shades, but they may be very properly combined with soft pink and deeper shades of such high class flowers as Cattleys or other orchids. A writer in the "Florists' Exchange" says: I have too often seen what would otherwise have been artistic designs spoiled by too many flowers being used and crowded so much together that no individuality was shown. It should be the aim of the florist to place every flower so that it will have a distinctiveness of its own.

Crocus Tommasinianus.

This is a very beautiful little Crocus species, with charming flowers, which are generally, and not inaptly, described as a "sapphire lavender." The exterior of the outer segments is of a pale lilac, with a greyish tinge about it, but the interior is of the hue of the ordinary description quoted above. This little Crocus, says Mr. Arnott in "The Scottish Gardener," comes in before the coloured Dutch varieties, and is delightful in the garden when in a sunny place, so that its flowers receive all the sunshine that is going in the early months. We have none too much of this at the season of this Crocus bloom, but it responds to even a little of the warmth and brightness of the rays, and forms a pretty bit of colour either on the rockery, in the grass, or in the border. Corms (or bulbs, as they are generally called) can be bought in autumn and planted about 1in deep. Not so large as the Dutch Crocuses, still *C. Tommasinianus* is a little flower of great beauty.

Anemone japonica.

Japanese Windflower is so named from its being easily stripped of its flowers by the wind. It is over sixty years, says a writer in the "Scottish Gardener," since this plant was brought to Europe from Japan. The first description of it was issued in 1842 from dried specimens in the herbarium of a Mr. Lambert, of London. At that time it had many synonyms—*Atragene japonica*, Thunberg, *Clematis polypetala*, Decandolle, *Kifune-gik* (Star of Kifune, Japanese), *Sim-jak-jak*, Chinese, &c. Unlike the spring-flowering *Anemone*, this plant delights in a moist, loamy situation. If in the margins of woods and shrubberies all the better to be just clear of the trees. It is quite hardy even where the climate is decidedly cold. It propagates itself by suckers, and requires no care in its management. It could easily be naturalised in any part of Britain, as it would hold its own with the most of our native growths. This species has now many varieties, chief of which is *Japonica alba*, formerly known as *Honorine Joubert*. In the golden month of October it is the most irresistible flower in the whole garden, with its charming foliage and the freshness of its large white blossoms. Other good sorts are *Hybrida elegans*, a delicate rose colour; *Queen Charlotte*, a deeper rose colour. Some of the other varieties have semi-double flowers, with the sepals overlapping, as in *Lady Ardilaun*, but just on that account have a stiffer and less elegant appearance.

Rose White Killarney.

This variety, says "The Florists' Exchange," originated at the Waban Rose Conservatories, Natick, Mass., and is a sport of the popular Killarney Rose. Half of the stock has been purchased by the F. R. Pierson Company, Tarrytown, N.Y., and will be placed on the market next year. Mr. Pierson has this to say of the newcomer: "I believe White Killarney is going to be the best white Rose that has ever been introduced, because it is an all-season Rose, like Killarney, being good both summer and winter, and should largely displace both *Bride* and *Kaiserin Augusta Victoria* in consequence, neither of which covers the entire season. Killarney has become such a popular Rose that I believe White Killarney will prove to be an equally important addition to our limited list of winter-flowering Roses. Both ourselves and the Waban Rose Conservatories will grow a whole house of White Killarney the coming year."

Helplessness of Cultivated Plants.

We rarely realise how helpless man has rendered the plants he cultivates by the centuries of protection from their weed enemies that he has given them. An experiment that well illustrates this point was made on one of the Government farms some time ago. A field about one acre in extent, upon which wheat had been grown for forty years in succession, was not harvested but allowed to stand and shed its seeds as it would. The next year a fair crop of wheat came up, but the weeds were gaining the ascendancy, and by the fourth season all the wheat had disappeared from the field, and the weeds held full sway. If man should suddenly disappear from the earth it is certain that his cultivated crops would soon follow him. And yet these very plants held their own against their competitors before man took them under his care. The reason they can no longer persist in the face of competition is not alone because they have grown weaker, but in a measure because the weeds have grown stronger. In protecting his crops man has constantly killed out the weak and least persistent weeds, and only those were left to perpetuate their kind that were able to elude man himself. One species, the self-heal (*Prunella vulgaris*), which ordinarily grows a foot or more high, has produced a variety so low that it is able to thrive on a closely mowed lawn. Darwin never considered the lawn-mower as one of the factors of evolution, but undoubtedly this Yankee invention has played its part in the great struggle.—("American Botanist.")

Hardy Plants in Flower at Glasnevin.

The weather for the past month has been characterised chiefly by the prevalence of harsh cold winds. Notwithstanding these, a considerable number of plants has supplemented those in flower a month ago. The following are now in bloom:—*Anemone apennina*, *A. a. purpurea*, *A. pulsatilla*, *A. ranunculoides*, *Arabis cilicica*, *Brodiaea uniflora*, *Cardamine polyphylla*, *Cardamine trifolia*, *Chionodoxa Luciliae Boissieri*, *Corydalis bracteata*, *Corydalis cava albiflora*, *Claytonia sibirica*, *Draba aizoides*, *D. brunifolia*, *D. grandiflora*, *D. lasiocarpa*, *D. Deedeanae*, &c. *Erica Veitchii*, *E. lusitanica*, *E. arborea*, *E. mediterranea hibernica*, *Erythronium dens-canis* and varieties, *E. Hartwegii*, *E. Hendersonii*, *E. Johnsonii*; *Forsythia suspensa*, *F. intermedia*, *Fritillaria askabadensis*, *Iris tubergeniana*, *I. Willmottiana*, *I. Warleyensis*, *Mertensia paniculata*, *Muscari racemosum*, *M. "Heavenly Blue,"* *Parrya Menziesii*, *Primula ciliata*, and *P. ciliata superba*, *P. denticulata cashmeriana*, *P. rosea*, *P. frondosa*, *Prunus tomentosa*, *Scilla bifolia alba*, *Scilla sibirica*, *Saxifraga Stracheyi alba*, *S. retusa*, *S. oppositifolia major*, *Sanguinaria canadensis*, *Tulipa Kaufmanniana aurea*, *T. praestans*, *T. p. tubergeniana*, *T. Greigi*, *T. turkestanica*, *T. pulchella*, *T. Eichleri*, *T. triphylla*, *Trillium sessile*, *Oxalis acetosella*, *Ribes sanguineum splendens*, and *Nuttallia cerasiformis*, both staminate and pistillate forms. *Saxifraga diapensioides*, *S. Frederici-Coburgii*, *S. "Faldonside,"* *S. tombeanensis*, and *Primula megaskefolia* in frames. Narcissi are now flowering freely in the grass and borders. *N. Henry Irving* is an excellent early flowering sort for naturalising; and for borders *N. ajax maximus* is very fine. Mention should also be made of *Aristolochia tomentosa*, a mass of flowers on a south wall.—J. W. B.

A French Woodland.

After all, it seemed well to return to our old love! Having coquetted with picturesque Ardennes, made friendly advances to schloss-crowned Harz, indulged in a sound affection for one more solid charms of the Schwarzwald, and courted for the nonce Emperor William's favourite Taunus, we gave our whole-hearted love once more to La France. What led up to it was doubtless a preliminary trifling with the Forêt. "The," surely, since who would dream of rivalling our Fontainebleau? Ah! what memories does the very word conjure up! What pages of La Belle's sadly fickle history does it recall! Are not Moret, Montereau and other such Arcadian retreats, moreover, household words among all travel respecting folk? How many generations of artists have diletanted on her woodland lawns and sylvan glades, have sketched the rustic chaumière and gabled eaves, or etched the sheltered lane, endowing with fresh glory the giant Beech, willing away many an odd noonday with a plunge in the cooling waters of the placid stream, or forsaking the brush for the immortal pastime of Isaac Walton? Yet it is not of the lighter delights of Fontainebleau that we would dwell upon, though we played a creditable first innings on its pitch. There was method in our folly, for did it not lead to that quaint unspoilt and untouristed department of Yoane, with its broad agricultural acres, its sloping uplands and fringing woods, itself, moreover, but a go-between 'twixt the Bohemian paradise and our *pièce de resistance*, the Vosges. Verily, France and her indigène are deserving of our experience, and to see her peasant and his life in his most native mood you must pierce through the veil and penetrate the inner depths of just such a district as this. Surely, too, this territorial corner of France has special interest from its history, for we are in the far-famed fair provinces of Alsace and Lorraine. It is impossible not to feel a large-minded sympathy with our neighbour for this torn limb in her side. Ascend the mountain beyond Gérardmer at the now furthest limit of France, and on the top of the ridge called the Honegg you may place your legs astride of the frontier and walk thus a span, the while looking down upon Munster and war-built Strasburg and the plains of Germany, with a glimpse of the poetic Rhineland. At the hamlet of the Schlucht, too, you may take your déjeuner according to your gastronomic taste or sympathetic leanings, either in Germany or France.

First and foremost of the arts and crafts of the Vosges Mountains, to give them the more dignified title, is, of course, the timber industry, and as naturally, from the varying heights of its elevation, the species are finely varied. Up the mountain slopes the Pine is pre-eminent, while the hills and valleys are responsible for much Beech, Birch, and Acacia, with a liberal quantum of Oak, Plane, and Poplar. So far as my observation went I hardly think there is much Elm. Lime there is, and in certain districts along the roadside, as so often in Germany and in many parts of France, you will find the Walnut. I accord the Vosges very high praise when I say that with the single exception of the Thuringianwald, which is noted for its superb timber and extensive varieties, the former takes premier place among forest regions of Europe. I am tempted to specify two heroes of woodland life. The one weather-worn veteran is to be seen at Gérardmer. Planted in the sixteenth century its present height is thirty metres, and it spans well over five metres at its base. The other must be sought in the drowsy little old world townlet St. Dié. It can boast of a birth as far back as the thirteenth century. Indeed, in the fourteenth it was already renowned. Partly destroyed by a cyclone in 1896, it was then severely shorn of a large measure of its glory.

Both are Limes, they recall, curiously enough, yet another of the same kind, which the visitor to Fribourg in Switzerland will remember. It, too, has a magnificent circumference, and dates from 1470. As regards fruit, we found in lowland districts the delectable Mirabel much cultivated. Embroidery is a specialty of the Vosges, and has a well merited reputation. I do not think I should quote these departments as particularly cheap, yet if you make up your mind to stay in the quieter spots, such as Bruyères or Le Tholy, instead of their more swell rivals, Contrexeville, Luxeuil, and Plombières, you may live economically enough. The latter are the stock dishes with first class hotels, hot springs and well ordered baths, consequently they are more health than pleasure resorts, though withal in exquisitely afforested districts. Gérardmer, as an all-round spot, apart from being dear, is perhaps the choicest of all, but lacks the advantage of centrality. Its peculiar charm is its lake, which is romantically beautiful, and of an entrancing shape. It must be fancy, yet it seems essentially French in its coquettish setting of rising woods and distant retreating bluish mountains, the whole having an airy appearance, such as you find not in the grander and more majestic lakes of the Bavarian Highlands.

In the winter I believe this and other parts of the Vosges will show you sport in the form of skiing, to which the regi-

ments quartered around are much addicted, for the dark season is a long one, and snow is liable to lie deep for a long spell. In hard seasons wolves descend from their forest lairs and invade the lowlands, causing some anxiety and more trouble. Yet it is the summer with which we are concerned. Then indeed is the Vosges a pleasant place in which to sojourn. The architectural feature throughout is the warm red-tiled roof in village or farmstead. The farm house and peasant's cottage alike are usually, too, very deep eaved, forming a splendid protection in stress of weather, and enabling stock and stuff to be stored beneath. The typical country dwelling is entirely self-contained, the major part being the barn stable and storehouse, and the remnant the dwelling for man. Usually there is a large round entrance, very picturesque in the distance, and which serves impartially for all entrants, the right leading off to the human habitation, and the left to the beasts' quarters and farm offices. Wood, shocks of maize, looking like huge golden carrots, drying tobacco leaves, and a row of bee-hives will generally, as in the Schwarzwald, be noticed in picturesque disarray under the liberal proportions of the spreading roof, which at the hinder part of the house often slopes right down to the ground, giving the abode from the middle distance a peculiar appearance.

Utterly unspoilt (and uncontaminated by tourists) are these sweet rural town villages, the peasants being original and often quaint, while the food in the old-fashioned hosteleries is astonishingly liberal and sound. Thus in the very unassuming little auberge where we sheltered for a goodly portion of a summer, we lived excellently on trout from the neighbouring burn, liquid cream almost *ad libitum*, delicious wild and "tame" berries, the tenderest veal, and several concocted native dishes, which in whatever part of France you are testifies to the culinary reputation of our Gallic neighbours for savoury "plats." And the garden! Did ever one see such a *multum in parvo*? Vegetables and fruit of every kind all ready to their appointed season from the most succulent of *petit pois* to huge luscious White Currants, while a goodly array of poultry gave us the much-appreciated fresh egg and omelettes sweet and savoury. I think, too, they have a local cheese of some estimation, but to this we found it necessary to become acclimatised! To those who must have a more refined degree of civilisation I am inclined to suggest Plombières as the panacea for their desires. It lies in a grandly wooded ravine of, I think, a branch of the Moselle, which itself is not far off. The hot springs bring a certain brigade of health seekers, and it is distinctly attractive to the antiquarian. There are, I fancy, Roman remains in plenty, as also in neighbouring Remiremont. It is snugly tucked away by itself, and the woods around are really glorious.

In spring it must be an Arcadia. As a sporting climax, an exit from the Vosges to those bound over the Jura into Switzerland, the transit on cycle cannot be too highly recommended. You lead up to your work gradually, having fair roads, cool fresh tracts, and practically virgin ground to charm your passage. By-and-by you reach Montbelliard, delightfully situate on the Doubs, and about here you begin to realise that you have left your sylvan retreat behind, exchanging therefor a foretaste of the Alps. A deep plunge down to the rapid Doubs, and a night's shelter at Maison Monsieur, the romantically placed inn sheer overhanging the river, and you must prepare for the arduous push up to Chaud de Fonds, a very elevated spot for this part of Switzerland, and judging by the weather reports, one of the coldest towns in the entire Confederacy. From here for a few kilometres up to a still higher level, and thence right away down to Neuchâtel, is simple enough, and may complete for the while your chapter of travel.—J. A. CARNEGIE-CHEALES, Switzerland.

Sabal Blackburniana.

Fan-leaved palms are general favourites with cultivators, and for large conservatories or winter gardens they make grand specimens. The genus *Sabal* includes several species that are especially valued for this purpose, and some handsome examples may be seen in the leading botanic and private gardens both in Britain and on the Continent. *S. umbraculifera* is one of the best known; *S. Adameoni* is also occasionally seen, while a third favourite, *S. Blackburniana*, is represented by noble plants in several collections. That shown in the illustration is a specimen of *S. Blackburniana* grown in a corner of the great conservatory at Chatsworth, where it for many years formed an object of much beauty. It was 20ft high, and nearly as much in diameter, with abundant healthy well developed leaves, deeply cut into sharp and regularly spreading segments. Rising above the ferns and miscellaneous plants grouped in the bed it had quite a majestic appearance. *S. Blackburniana* is a native of tropical regions, but like most of its genus it has a good constitution, thriving with moderate attention, and enduring a lower temperature than many palms. Small plants can be grown in pots, employing a substantial loam, but the longer specimens are better either in tubs or planted out.



A tall Fan] Palm, Sabal Blackburniana.

Stray Notes.

Tardily the cold winds are leaving us, and although vegetation makes progress, it does so but slowly. There is no rushing forward under the influence of a balmy air and refreshing April showers. The present month has as yet only shown us a glimpse of her typical charms, but for the nonce seems bent on borrowing the plumes of March. Vegetation is undoubtedly backward, and farmers and vegetable growers have during the last six weeks had a trying time owing to the difficulty of sowing various crops, and of the slow progress made by others which should be rapidly advancing toward maturity. Prospects may, however, be entirely changed by a week of genial April weather.

Those specially interested in fruit culture have as yet no cause to complain; indeed, they may well be contented at the rich promise of spring. The long retarded blossom buds moved very slowly during the past month, and have become hardier in consequence. Apples look exceptionally promising, the majority of trees being thickly studded with well-developed blossom buds. Pears also are showing plenty of blossom, notwithstanding the heavy crops which many trees carried last year. Plums do not show the wealth of blossom they have sometimes done in previous years, but if frosts and cold winds leave them

them at bay (except by a free use of the gun), as threading the trees with cotton is quite out of the question, and I fancy the birds can ruin the prospects of the Gooseberry grower even more quickly than the dreaded American Gooseberry mildew.

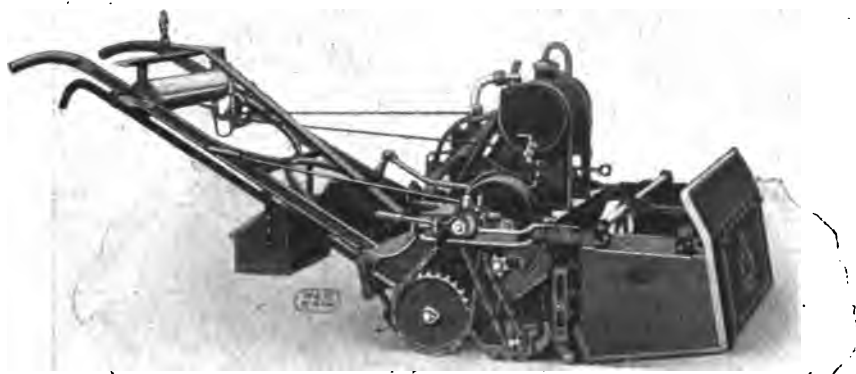
Having thus given vent to my feelings in regard to the destruction wrought by birds, I am now going to say a word in their favour, which, but for their erratic behaviour in such matters, might enable the fruit grower to use them to advantage. Not long ago a small holder who grows a considerable number of Black Currant bushes, which, unfortunately, during the last two years have been badly attacked by gall-mite, asked me to look at his bushes. I went, expecting to find them in a sorry condition, which I did, but not in the condition I anticipated. The ground beneath the trees was covered with material resembling chaff, which proved to be the remains of buds and bud-scales. The birds had effectually cleared off all the mite-infested buds, but whether or not they also made a clean sweep of the mites remains to be proved. At any rate, this somewhat unusual behaviour of our feathered friends (or foes) opens up vast possibilities for the future. Some time ago I think Mr. A. Dean suggested that it was a pity birds, with their voracious appetites for buds, did not help to rid us of the Black Currant mite. Well, they have certainly got hold of Mr. Dean's idea, and yet some say our British birds have no understanding, that they do things out of sheer "cussedness"! Who will enlighten us further?

At the present time Daffodils and Tulips reign as queens in the garden, and provide glorious masses of attractive colours which compel admiration. They are worthy of the attention of everybody. No garden can be considered complete without them; yet there is certainly a danger that their assertive charms may lead the flower lover to pay too little attention to other plants of sterling merit which flower at about the same time. A garden containing a great variety of plants is infinitely more interesting than one of similar size filled with only a few species of flowering plants, which give a blaze of colour for a time, to be followed by a period of dullness. Let me, therefore, say a good word for the beautiful forms of *Erythronium dens-canis*, a species of Dog's-tooth Violet, which is certainly worthy of more extended culture. The

flowers vary in colour from soft rose to pink and white, which show up to advantage above the purple-brown and silvery blotched leaves. The combination making the plants as a whole uncommonly striking. Recently I have visited numbers of gardens where many showy plants are grown, but a glorious mass of the rose coloured form of this Dog's-tooth Violet, growing on a rockery, has left an impression which still lingers in the memory. For planting on rockeries, or in warm corners of the mixed border, plants of this type are of sterling merit. Those who are looking for quaint and attractive April flowering plants should obtain a few bulbs during the summer months. In rich light soils they succeed admirably, where the soil is stiff add plenty of peat or leaf soil and sharp sand. Give an annual top-dressing, and leave the bulbs undisturbed for four or five years; then lift and replant soon after the foliage has died down.—WANDERER.

A "Shanks" Motor Mower.

In continuing our observations on motor mowers (see page 341, April 9), we draw attention now to one of Messrs. Shanks's machines (Arbroath, N.B., and Bush Lane House, London, E.C.). The one here illustrated is a motor-driven mower especially designed for golf courses. The machine is made to cut 30in wide. It is perfectly equipped in every respect, durable, easy to manage, and very economical in fuel consumption. It is fitted with a very powerful cutter, and will work on stiff gradients. On account of the undulating nature of golf courses in general, the machine is steered from the handles, and is made to work at a speed suitable for the attendant, who has it under perfect control. Special care has been taken to provide the machines with the most modern devices for the reduction of friction. Not the least important of these are Shanks's steel axle springs, which are of great advantage. This machine makes a very efficient roller, as the weight is concentrated over the main drum; and when it is desired to utilise it for this purpose the cutter has simply to be put out of



Shanks's 30in. Motor Mower.

uninjured there is plenty of blossom to produce a good crop of large, fleshy fruits, which are of more value to the market or private grower than the undersized, badly coloured, flavour-lacking samples too prevalent during seasons of glut.

The rich promise fruit trees show at the present time is a matter for more than passing comment when we consider the great lack of sunshine experienced during the summer and autumn of 1907. There could have been very little chance for the thorough ripening of wood. Growth throughout the season was late. Fruits ripened late too. Many trees were wonderfully vigorous, as well as green and healthy in the foliage till the end of October, and after that we had little but wet or sunless days till Christmas; and yet, by some means or other, fruit trees ripened their wood, and have produced blossom buds of the best type. There is assuredly yet much to be learned about wood ripening and blossom-bud formation. How easy it would be to fill columns of space with arguments for and against the orthodox ideas about wood ripening! The matter needs working out stage by stage with the slow, observant, resourceful, painstaking methods of some enthusiastic scientist; for at present it seems that we really know nothing definite about the matter. What often passes for knowledge is nothing more than mere conjecture.

How erratic birds are in regard to their ravages on the buds of trees as well as crops. In looking over numbers of fruit plantations recently, I found that in one district both Gooseberry bushes and Plum trees were quite uninjured, although sparrows and tits were numerous enough. Yet in another locality, not many miles away, the bulk of the Gooseberry bushes in one plantation was literally ruined for the season, in consequence of the bud-destroying propensities of birds. Curiously, the longer shoots seemed to have suffered the most. I noticed dozens from 15in to 18in in length from which all the buds had been removed with the exception of two or three at the base, and a similar number at the extreme tip. May Duke and Leveller had suffered the most; and Whinham's Industry and Warrington were the least injured. When birds do tackle a plantation in this way it is difficult to know how to keep

gear. The mower has a large reserve of propelling power, which is essential for cutting or rolling on golf courses. And, of course, such a mower costs a goodly sum, this one being priced at £110. On large estates, however, they pay for themselves in a few years.

Societies.

R.H.S. Scientific Committee, April 14th.

Present: Mr. E. A. Bowles, M.A., F.L.S., F.E.S. (in the chair); Messrs. G. S. Saunders, W. Hales, E. M. Holmes, A. Worsley, W. C. Worsdell, G. Massee, J. T. Bennett-Poë, W. Cuthbertson, and F. J. Chittenden (secretary).

Funnel-shaped outgrowth in Ivy.—Mr. W. C. Worsdell showed a leaf of Ivy having a funnel-shaped growth proceeding from near the base, similar to that often seen in Cabbages, but in this case it grew from the lower surface.

Double-spathed Richardia.—G. Siggs, Esq., F.R.H.S., of Streatham Hill, sent an inflorescence of *Richardia ethiopica* with a second full-sized leaf proceeding from the flowering stem, about 8 in below the normal spathe, of a white colour, except at the tip. The phenomenon is common, but was particularly well marked in this specimen.

Potato-disease Fungi.—Mr. Massee showed specimens of Potato tubers affected with "winter rot," with the fungus *Nectria solani*, which is the cause of the disease, growing thereon, remarking that it had been particularly prevalent during the past season, a fact that he attributed partly to the prevalence of rain during the last summer, and the difficulty of thoroughly drying the tubers before they were stored. This fungus had recently, he said, been described under another name by an investigator, a condition of things found not alone in this disease, for recently the fungus long ago described by Berkeley (see Journ. Roy. Hort. Soc., Vol. I., 1846, p. 33, Figs. 30, 31) under the name of *Tubercinia scabies*, and now known as *Sorosporium scabies*, Fisch., one of the causes of Potato scab, had been apparently rediscovered and renamed as new, *Spongospora solani* on the Continent, and this name had been taken up by some botanists in England and Ireland as the newly-discovered cause of Potato scab.

Propagation of Drosera.—Mr. Hales showed plants of *Drosera hirsuta* raised from root cuttings put in about five weeks ago. The plants had each developed a number of leaves.

Hybrid Orchids.—R. G. Thwaites, Esq., F.R.H.S., of Streatham Hill, S.W., wrote in reference to the communications recently received by the committee concerning the crossing of albino orchids: "The result of crossing *Dendrobium Wiganianum album* (in which the peduncle is only slightly coloured) with *D. nobile virginale* (which is white all through) has been, in every instance, a coloured flower of the ordinary *D. nobile* type; whilst *D. nobile virginale* self-fertilised has in every instance produced pure white flowers, appearing to prove that *D. Wiganianum album* is not a true albino. Again, when *D. nobile virginale* is crossed with *D. aureum* in every instance the same result is obtained as from crossing the ordinary *D. nobile* with *D. aureum*, namely, *D. Ainsworthii*, the flowers of which are full of colour."

Gall-like growths of Larch.—Mr. Massee reported that the gall-like growths on the Larch shoot shown by Mr. Elwes last week were really the scales of a female cone, which had been separated from one another by the growth of internodes. They had apparently been early attacked by thrips abietis. Seeds and seed scales were both to be found in their axils.

Seedling Elm.—Mr. Chittenden showed a seedling of *Ulmus glabra* from Terling, where they had occurred in abundance last season (see Kew Bulletin, 10, 1907, p. 404). This Elm is abundant in many parts of Essex, but only once before had he found a seedling, and that in his garden at Chelmsford in 1903. *U. campestris*, of which this is probably a form, is not known to seed in England, unless the seedlings recorded from the King's College "Backs" should prove to be really those of that tree.

Diseased Plants, &c.—Several diseased plants and insect pests were received and dealt with.

Edinburgh Spring Show.

The spring exhibition of the Royal Caledonian Horticultural Society was held in the Waverley Market, Edinburgh, on Wednesday and Thursday, the 15th and 16th inst., and though smaller, it was quite successful. Changing of the date, from April to May and back again to April, has rather perplexed growers to time their productions. "They don't know where they are," might be said of competitors. The total entries were ahead of last year, there being a larger plant display, while the gloomy spring greatly reduced the show of vegetables and open air subjects. It was hoped that reverting to April would re-suscitate Hyacinth growing, for which Edinburgh was at one

time noted; but this hope was vain, as only one lot of twelve and one of six were shown, which were poor in the extreme. Groups of plants were more numerous than usual. Orchids were also much in advance of recent years, and Roses, both in pots and cut, were very well shown. Fruit was conspicuous by its absence. Trade exhibits, as usual, were the leading feature of the exhibition.

For the best group (space 20ft by 12ft) there were four lots, all of fair merit, though generally of rather commonplace material. First was awarded to Mr. Adam Knight, gardener, Brayton Hall, Carlisle. This was a tastefully arranged group, fine specimens of *Schizanthus* being prominent. *Deutzia Lemoinei*, *Cytisus Andreanus*, and *Campanulas* were also showy, and many well coloured *Crotons* added dignity to the exhibit. Mr. Geo. Wood, Oswald House, Edinburgh, was second. The veteran orchid grower, Mr. W. Sharp, Freeland, Perth, was placed first, his individual specimens being better than in the other exhibits. Mr. D. Mackay, Viewbank, Eskbank, was a close second. For stove or greenhouse plants in bloom, Mr. Henderson, Salisbury Green, was first with fair plants; and Mr. Geo. Wood second. For six plants in bloom, Mr. Findlay, Gogar Park, led; and Mr. G. Wood again second. For four foliage plants, Mr. A. McMillan, Douglas Castle, led with good specimens, Mr. Thom, Carlisle, following. For six foliage plants, Mr. Knight beat Mr. McMillan, and was first for three *Dracaenas*. Ferns were a fair show, Messrs. McMillan, Wood, and Bruce (Rockville) being the chief exhibitors. For three plants of *Cineraria stellata* there was a large competition, Mr. W. Galloway, Gosford, being first with beautiful plants. For four *Schizanthus* there was a keen fight, Mr. A. Knight being first with very handsome plants. For *Calceolarias*, *Spiraeas*, *Marguerites*, *Lilacs*, *Pelargoniums*, *Gloxinias*, *Deutzias*, *Hippastrums*, *Viburnums*, &c., there was fair competition—six *Primula obconica* from Mr. G. Kerr, Langton, Duns, were remarkably fine. Tulips were very good, also pots of *Narcissus*. Alpines and spring-flowering bulbs were well shown, Mr. Pirie, Dalhousie Castle, being the leading exhibitor of alpines. Hardy Primroses, Polyanthus, and Auriculas were also a very pleasing feature.

Roses in pots were much finer than usual at Edinburgh shows, and occupied a large table. Mr. J. Thom was first, and Mr. W. Young (Kirkcowan) second. For six h.t.'s, Mr. Parlane (Row) was first. Daffodils and Roses were the leading cut flowers, and made a good display. For twelve bunches *Narcissus*, Mr. Pirie was an easy winner with a beautiful exhibit, Duke of Bedford, Alert, and Pope's King being prominent. Mr. A. Bryden, Inverleithen, was second. For Malmesdon Carnations, Mr. A. McKinnon was first, and for three vases of other Carnations, Mr. R. Davidson, Isle of Rum, led.

For dinner table decoration for eight people on a table 10ft by 5ft there were six competitors, who made attractive displays. The first place was awarded to Mr. Davies, Ballathie, Perth, with an attractive display in varied shades of pink and white; Mr. Kidd, Carberry, a good second with Safrano Roses and Lily of the Valley. Mr. R. Davidson was third with Chatenay Roses. These tables were all too crowded for the stated number of guests, and with three tall vases in a line, looked like a hedge to divide the company.

TRADE EXHIBITS.

Messrs. Laird and Sons, Edinburgh, had a large floor group of much artistic design in the form of a Japanese tea-garden, composed of the leading forced shrubs. (Gold medal.)

Messrs. Cunningham and Fraser, Edinburgh, had a most imposing group, chiefly of finely-flowered *Rhododendrons*. (Gold medal.) Messrs. Cutbush and Sons, London, put up a large and very handsome table of spring-flowering plants, Roses, and Carnations. (Gold medal.) Messrs. Barr and Sons, London, had an imposing display of Daffodils. Peter Barr was in fine form. First-class certificates were awarded to "Charm" and "Bedouin." Messrs. Hogg and Robertson, Dublin, were awarded a silver-gilt medal for a beautiful exhibit of Irish-grown Daffodils, Anemones, and Tulips. Mr. John Downie, Edinburgh, was awarded a silver medal for *Spiraeas* in many varieties. A similar award was made to Sir Josslyn Gore Booth, Lissadell, Sligo, for Daffodils. Mr. John Forbes, Hawick, had a very handsome table of Carnations, Pansies, Violas, tree Paeonias, and splendid spikes of *Delphiniums*, specially forced for this show. (Silver medal.) Messrs. Dobbie and Co., Rothesay, showed Primroses and Polyanthus in great variety, also Violas and fancy Pansies. (Bronze medal.) Messrs. Storrer and Storrer, Glencarse, had a very showy exhibit of varied flowers, but chiefly of their very excellent strain of *Primula obconica*. (Bronze medal.) Mr. Gerald Roche, Gowean Castle Gardens, Kilkenny, received a bronze medal award for an interesting exhibit of St. Brigid Anemones. Messrs. Hugh Low and Co., Enfield, sent a small but meritorious exhibit of cut Carnations. Mr. D. McLeod, Chorlton-cum-Hardy, Manchester, contributed choice orchids; and Messrs. Keeling and Sons, had also a nice collection of choice orchids. An award of merit was made to Mr. Wm. Angus, Penicuik, for *Primula Angusi*.

Untoward weather during the show considerably reduced the number of visitors usually seen at Edinburgh shows. The arrangements of the new secretary, Mr. McKenzie, and the show committee, were of a thoroughly efficient nature.—T. M. E.

Devon Daffodil (Plymouth) April 21st and 22nd.

This society held a very successful exhibition in the Plymouth Guildhall, attracting exhibitors from distant parts of Devon and Cornwall. In the class for collection of thirty varieties of Daffodils, Mr. G. Soltau Symonds, Plympton, was first with a fine and representative lot, including Golden Bell, Dante, White Lady, and Lucifer. Mrs. Walter Tyacke, Helston, was first in the class for twelve distinct varieties. This lady also did well in the other open classes for Daffodils, as did Mr. C. Vivian. Mr. H. G. Hawker was first for one bloom Magni-coronati, with a splendid Mme. de Graeff; Mrs. E. Powys-Rogers being second with a scarcely less fine Emperor. Mr. Hawker was also first for single Leeds, Pilgrim. For a group of hard-wooded flowering shrubs (always an interesting class here) the Earl of Mount Edgecumbe led, whilst in a similar class, confined to the county of Devon, Mr. T. B. Bolitho, Greenway (gardener, Mr. J. Murley), was foremost, being run very closely by Mrs. R. C. Bainbridge (gardener, Mr. F. Rich), second; and Mr. Soltau Symonds third. This class made a really fine show, and included many interesting varieties of shrubs, hardy in Devon and Cornwall. *Cianthus puniceus alba*, *Pyrus japonica*, varieties of *Viburnums*, and *Habrothamums* were noticeable. Plants in pots were not greatly in evidence, *Schizanthus*, *Cineraria stellata*, and *Lopezias* being most prominent.

Mr. J. C. Williams, of Caerhayes, received a certificate for a collection of seedling Daffodils. This gentleman was first for a collection of cut *Rhododendrons*; Mrs. Coryton, Pentillie, being second.

Trade exhibits were contributed by the Devon Rosery, Torquay, with pot Roses, Messrs. Barr and Sons, London, with Daffodils and Tulips, Mr. Hayward Mathias, Medstead, Hants, with a fine collection of cut winter Carnations, Godfrey, Exmouth, with zonal Pelargoniums, and Webber and Sons, Plymouth, miscellaneous collection of flowering and foliage plants. Captain Parlbay was the honorary secretary.—F. C. S.

British Gardeners' Association.

NEW BRANCH AT BLACKBURN, LANCs.

On Wednesday, April 15, a large meeting of gardeners took place at the Eccles Rooms, Blackburn, under the chairmanship of Mr. Stradford, superintendent of the Corporation Parks. He was supported by Mr. Batty, head gardener at the Corporation Cemetery, Mr. Hudson, superintendent of Queen's Park, Messrs. Boyd, Pimlott, Bradburn, and Murray, and about sixty other gardeners. Mr. J. Weathers, general secretary of the B.G.A., delivered an address upon the work, aims, and objects of the association, and was listened to with marked attention. He pointed out that although gardening was the oldest profession in the world, those who exercised it were amongst the most disorganised and worst paid class of workers in the kingdom; and this, notwithstanding that horticulture had reached a degree of success and affluence never before excelled. It was being continually stated that "gardening was a luxury," as if the intention was to hint to gardeners that unless they put up with wretched wages and conditions they would be dispensed with altogether. To show the absurdity of the statement, Mr. Weathers asked what would happen to all the public and private gardens and parks, the nurseries and market gardens, and the flower shows if all the gardeners in the kingdom were to cease work for only a month or two? It would mean a loss that could only be reckoned in hundreds of thousands of pounds. Gardeners, however, were reasonable men, and all they required were fair conditions of employment and payment in accordance with their ability and experience it had taken them years to acquire.

The B.G.A. was established to help the professional gardener to secure better recognition, and also to be a help to employers in selecting men who understood what gardening meant. At the present time many excellent positions in the horticultural world were held by men who had not even grasped the elementary principles of gardening practice, and there was no reason why gardeners who were competent should not aspire to these positions. For after all no horticultural society, organisation, or anything else connected with gardening could succeed without the help and co-operation of the practical man. The lecturer hoped that Blackburn that evening would set an example not only to Lancashire, but to the rest of the country, and establish a strong branch of the British Gardeners' Association, so that gardeners and employers of gardeners would be brought into closer and more friendly relations.

After numerous questions had been put and answered, it was decided to form the Blackburn Branch of the B.G.A., and about sixty gave in their names for membership. Mr. Stradford was elected chairman, and Mr. Batty secretary, and the committee will be appointed at the next meeting, after all forms have been submitted to and passed by the executive council in London.—J. W.

Birmingham Gardeners'.

The last fortnightly meeting of the spring session took place on the 13th inst., Mr. W. L. Deedman (the secretary), having been scheduled to deliver "A Chat About Ferns." Considering his position for many years as foreman in the Botanical Gardens, Edgbaston, Mr. Deedman was qualified to speak authoritatively on them, more especially concerning the exotic species and varieties. The various species were classified according to their respective order, and special cultural details were given when necessary. An interesting discussion followed, and the subject was illustrated by a collection of dried fronds, chiefly of hardy varieties, contributed by Mr. Wm. Gardiner, which proved very interesting to the spectators. In the course of the discussion Mr. Walter Jones (the chairman) adverted to the unfortunate decline of exhibition specimens of exotic ferns, also that when shown nowadays, as well as formerly, the judges did not always assign to them their proper position, nor take into consideration their relative value with other plants, especially as to the more or less difficulty of culture and the years involved in producing a large specimen. Mr. A. Cryer endorsed those sentiments, remarking that palms had also receded in favour.

Royal Meteorological.

PHENOLOGICAL OBSERVATIONS FOR 1907.

The monthly meeting of this society was held on Wednesday evening, the 15th inst., at the Institution of Civil Engineers, Great George Street, Westminster, Dr. H. R. Mill, president, in the chair. Mr. Edward Mawley, V.M.H., presented his "Report on the Phenological Observations for 1907." He pointed out that the most noteworthy features of the weather as affecting vegetation were the cold and sunless character of April, May, and the three summer months, the frequent falls of rain during that period, the warm, dry, and sunny weather in September, and the heavy and continuous rainfall in October. Wild plants came into blossom behind their usual dates throughout the whole of the flowering season. Such early immigrants as the swallow, cuckoo, and nightingale were also behind their average dates in reaching these islands. The only deficient farm crop, taking the country as a whole, was that of Potatoes, most of the other crops being much over average. On the other hand, the yield of Apples and Pears, and particularly that of the former, was below average. There was also a deficient crop of Strawberries, whereas Plums, Raspberries, Currants, and Gooseberries were over average. As regards the farm crops, Mr. Mawley stated that 1905 was a plentiful year, in 1906 the yield was even better, while the past year proved the most bountiful of the three.

SOUTHERN ANTICYCLONIC BELT.

Colonel H. E. Rawson, C.B., R.E., read a paper on "The Anticyclonic Belt of the Southern Hemisphere." He said that from an examination of the daily synoptic charts of the northern hemisphere he was led to the conclusion that some of the permanent anticyclonic systems had a progressive seasonal movement, which did not take place along the same latitude each year, but was in some years north and in others south of a mean latitude. This was noticeable in the years 1881-1891, and was capable of easy explanation if the belt itself in which they moved shifted its latitude from year to year in addition to migrating north and south with the sun. On analysing the isobaric charts of the southern hemisphere he found the seasonal migration of the anticyclonic belt is found to be accompanied by a real displacement of the action-centres within it to the northward and to the southward. But when the charts are compared great discrepancies are found to exist in the positions of the centre if the years to which they refer are not the same. Also when they are prepared for a long period of years, the action-centres show a much wider displacement from a mean latitude than for a short period. In one case charts which were published in 1879 were considerably modified in 1883, the area of maximum pressure within the belt being shown farther south. At the Cape a "monsoon" influence associated with the winter months of the years 1896-1900, in connection with the north-west wind is found to exist, which was not traceable in the years 1842-1855, 1862-1865. At Durban a decided increase in the percentage frequency of winds with a westerly component in winter months of the years 1892 and 1893 is traced to an increased prevalence of the same north-west wind, and it is found to prevail in an exceptional manner during the summer months also. This wind is proved to indicate the arrival at Durban of the south side of the anticyclonic belt, and the inference is drawn accordingly that during 1892 and 1893, when it prevailed throughout both summer and winter months, the south side of the belt was much farther north than usual. Colonel Rawson went minutely into these matters in his paper, and showed that the rainfall also varied according to the movement of the anticyclonic belt north or south of its mean position. It appears that there is a period of about 9.5 years between the greatest north and greatest south position of the anticyclonic belt over South Africa, the double oscillation thus taking nineteen years.

Redhill and Reigate Gardeners'.

The Redhill and Reigate Gardeners' Association held their fortnightly meeting at St. Matthew's Parish Rooms on April 14, Mr. Seaman (vice-chairman) presiding. Mr. R. S. Ragg, B.A., of the Grammar School, Reigate, was introduced, and gave a most instructive lecture on the Pear midge (*Diplosis pyrivorus*). In 1906 he visited forty gardens, not one of which was free from this terrible pest. He had sprayed his trees with paraffin emulsion to prevent the midge from depositing its eggs, but without effect. He placed some of the larvae in pure paraffin, and at various times up to twenty-four hours found them still living. He also tried another experiment, viz., by placing some on quicklime at various depths. At the depth of half an inch they burrowed through, thus proving the uselessness of applying lime about the trees. Hand picking from the third week in May to the second week in June was the best remedy. During the discussion, one member suggested that employers should employ their men overtime, so as not to interfere with the regular work. A very hearty vote of thanks was accorded the lecturer.—G. P. S.

Croydon Gardeners'.**PEACH CULTURE.**

Mr. W. Seabrook gave the latest address upon the cultivation of Peaches and Nectarines. Shallow planting he advocated strongly, and the subsoil must be well drained to take the soakings of water which they require. In young trees he does not recommend a rich soil, but good fibrous loam with the addition of a little bonemeal is all that is required. Planting firmly is very essential. The rods should be of medium length, and trained four to six inches from each other, which will allow light and air to pass around the fruit. Disbudding when growth is about an inch long he had found to be productive of good fruit. Just before the flowers open he advised spraying with quassia and softsoap, and this remedy may be adopted at intervals to keep down aphids and other insect pests. As soon as the leaf-buds commence to expand soak the roots well with water. Thinning the fruit should be done on two occasions, leaving a space at the final thinning of one foot square. Manuring should be moderate till stoning is completed, then ample feeding may be gradually given. Under glass syringing several times a day is required, whilst those on the outside walls should be done twice a day. A remedy he practises for the leaf-curl is pinching out the parts affected on its first appearance. Amongst some of the varieties he recommended are:—Waterloo, Early Rivers, Hale's Early, Crimson Galande, Dymond Barrington, and Walburton Admirable. A short discussion followed. Some good exhibits came from the members, Mr. A. Edwards staging three pots each of double Cinerarias and rubra maxima Tulips; Mr. F. Oxtoby, two pots of Schizanthus and two well-grown Azaleas, and a choice collection of orchids, including some well-flowered Dendrobiums from Mr. M. E. Mills.

Association of Economic Biologists.**ANNUAL MEETING AND CONFERENCE.**

The annual meeting of the Association of Economic Biologists was held at University College on the 15th, Mr. A. E. Shipley, M.A., F.R.S., presiding. The third annual report of the council noted with pleasure the continued growth of the association as regarded the number of members, which now totalled 130. Successful meetings were held at Cambridge for three days in January, and one in London in July. The treasurer's report showed a balance of £125 in hand. The president, vice-presidents, and council were then elected, and in the afternoon a general meeting of the association was held. At the general meeting the President dealt with the recent disease found in grouse. Mr. H. T. Gussow spoke on the "Predisposition of Plants to Parasitic Diseases." Mr. C. Gordon Hewitt, speaking on the subject of the need of an organised inquiry into the feeding habits of British birds, said all of them must have been struck by the absence of precise information concerning actual feeding of birds. He moved a resolution as follows:—"That, in the opinion of this association, it is desirable that a committee should be formed for the investigation of the feeding habits of British birds." The President having seconded the resolution, it was carried. Mr. Walter E. Collinge addressed the conference on the possibility and danger of the introduction of the San Jose scale into Great Britain. In the course of his remarks he said that this scale was a most dangerous insect pest, which would, if introduced into England, be capable of endangering the fruit-growers' interest. The insects were rapid breeders, and were capable of adapting themselves to any climate. He expressed a very strong hope that the eggs on fruit and fruits bearing twigs would not be introduced into this country. He had seen the insect alive on Pears purchased in Birmingham fruit markets, and unless stringent steps were taken it would be introduced here, and once here it would be a great pest to horticulture. In the general discussion which followed, the speakers said there ought to be more stringent steps taken with regard to fruit importation into this country.

Market Gardening Notes.**CARNATIONS AT BALCOMBE.**

These are grown for two purposes, market and exhibition blooms, and also for plant selling. Pride of Exmouth is very largely grown; very free and hardy. Rose-pink Enchantress is doing well, also the original Enchantress. Helen Goddard, for which Mr. Waters obtained a certificate at Wolverhampton, is a fine thing. President is extremely fine. Britannia also is very conspicuous, and so is Elliott's Queen, a Sussex-raised variety—cerise, very distinct. Harry Fenn, Nell Gwynne, White Enchantress, and Lady Bountiful were each at home.

SWEET PEAS FOR CUT BLOOMS AND SEED PURPOSES.

Two acres were being planted in a Sussex nursery at my call in the third week of April. A typical Sussex clay, one which is now difficult to plant, but this is being got over by the aid of a little prepared soil for the new roots. Once established, the growth and results are good. Named varieties are only grown, and of the best, with the addition of the new ones for trial. Sown in pots under frames and kept hardy, there is no check in planting.

TRADE ORCHID GROWING IN SUSSEX.

To my surprise, when at the Carnation establishment of Mr. C. F. Waters, Balcombe, Sussex, I found two full-span houses filled with some 20,000 *Odontoglossums crispum*. Established plants for cut bloom, and also for plant selling, were well done. Again, a large supply of imported clumps were filling another house. Only a few Cattleyas at present are grown, but it will be strange if these are not more extensively tried. Sussex evidently suits these orchids, and the above-named grower is making a good bid for trade.—STEPHEN CASTLE.

Dahlias.**Classification of the Dahlia.**

AS ADOPTED BY THE NEW ENGLAND (U.S.A.) DAHLIA SOCIETY.

Dahlias are double, semi-double, or single.

A.—DOUBLE DAHLIAS consist of a close mass of ray florets, and in their perfect form show no central disc. They include three types:—

I.—The globular or show type, approximately spherical in shape, having florets nearly equal in length and breadth, often quite circular, and always incurved, rolled, or cupped.

II.—The DECORATIVE type, having flowers flat or approximately so, with flat florets.

III.—The CACTUS type, distinguished by long relatively narrow florets rolled back.

POMPON or LILIPUTIAN Dahlias are small-flowering varieties of the double types.

B.—SEMI-DOUBLE DAHLIAS have two or more rows of ray florets surrounding a well defined central disc.

C.—SINGLE DAHLIAS have a single row of ray florets surrounding a central disc. The typical single Dahlia has eight such florets.

Plain flowers have but a single colour, or if bi-coloured have the ground colour lighter than the tips.

Fancy flowers are striped or have the ground colour darker than the tips. This distinction applies to all types.

Recognised classes for exhibition are:—

a—Plain. SHOW DAHLIAS.

b—Fancy.

c—Other sub-divisions.

DECORATIVE DAHLIAS.

Any sub-divisions.

Any sub-divisions. CACTUS DAHLIAS.

POMPON OR LILIPUTIAN DAHLIAS.

Any sub-divisions.

SEMI-DOUBLE DAHLIAS.

a—Holland Pæony-flowered.

b—Any other sub-divisions.

a—Collarette. SINGLE DAHLIAS.

b—Anemone-flowered.

c—Giant-flowered.

d—Any other sub-divisions.

The above is simply a classification, and should not be misconstrued. In the April issue we shall publish a set of rules for judging in connection with a schedule for our Fall show, in which will be enumerated all such varieties of Dahlias or types which should be classed as "other sub-divisions."

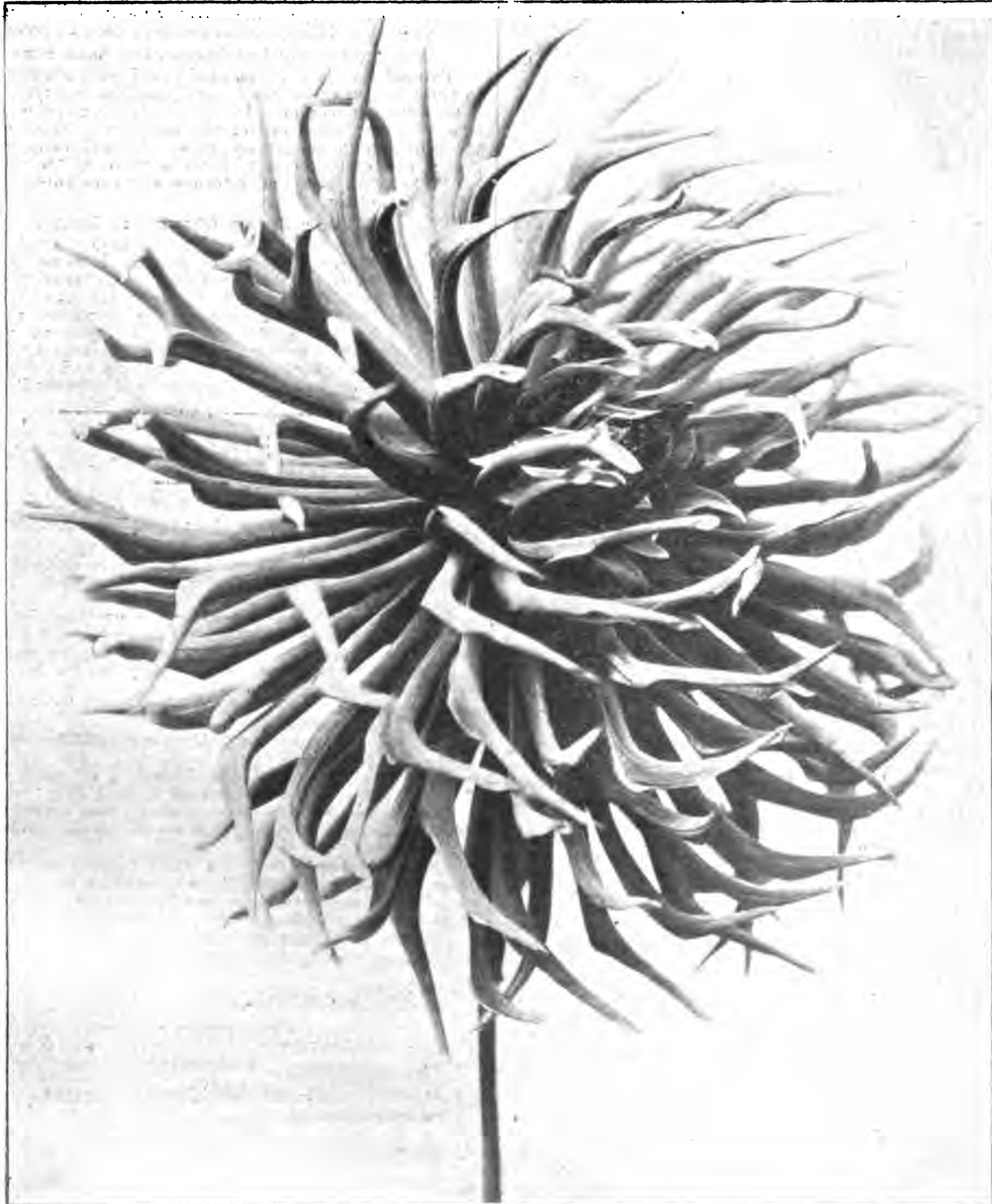
We intend for once to do away with the annually occurring disputes and arguments on the right of exhibiting certain

Dahlias, such as Mrs. Chas. Turner, in either the class of cactus or decorative, or both.—("Dahlia News" for March, 1908.)

NOTES ON VARIETIES.

This is the season when Dahlias, like other tender or half-hardy herbaceous plants, are being considered for planting out.

obtainable in great diversity, and the types will go on increasing and improving, no doubt. The cactus varieties are very general favourites, though the new pompon-cactus kinds are certainly very dainty, and excellent either for the garden or for cut flowers. The pompons, singles, doubles, and Peony-flowered have each a place, and the National Dahlia Society or the



Dahlia, Dr. G. G. Gray.

Some of the trade growers have been developing the system of selling small tubers during winter. These are started in heat, and the buyer can thus have two, three, or more cuttings from a stool, and grow them on. But again, most cultivators will prefer to have fresh young plants from cuttings, sturdy and well rooted. The position of the Dahlia as an ornamental autumn plant is slowly but surely rising. Dahlias are now

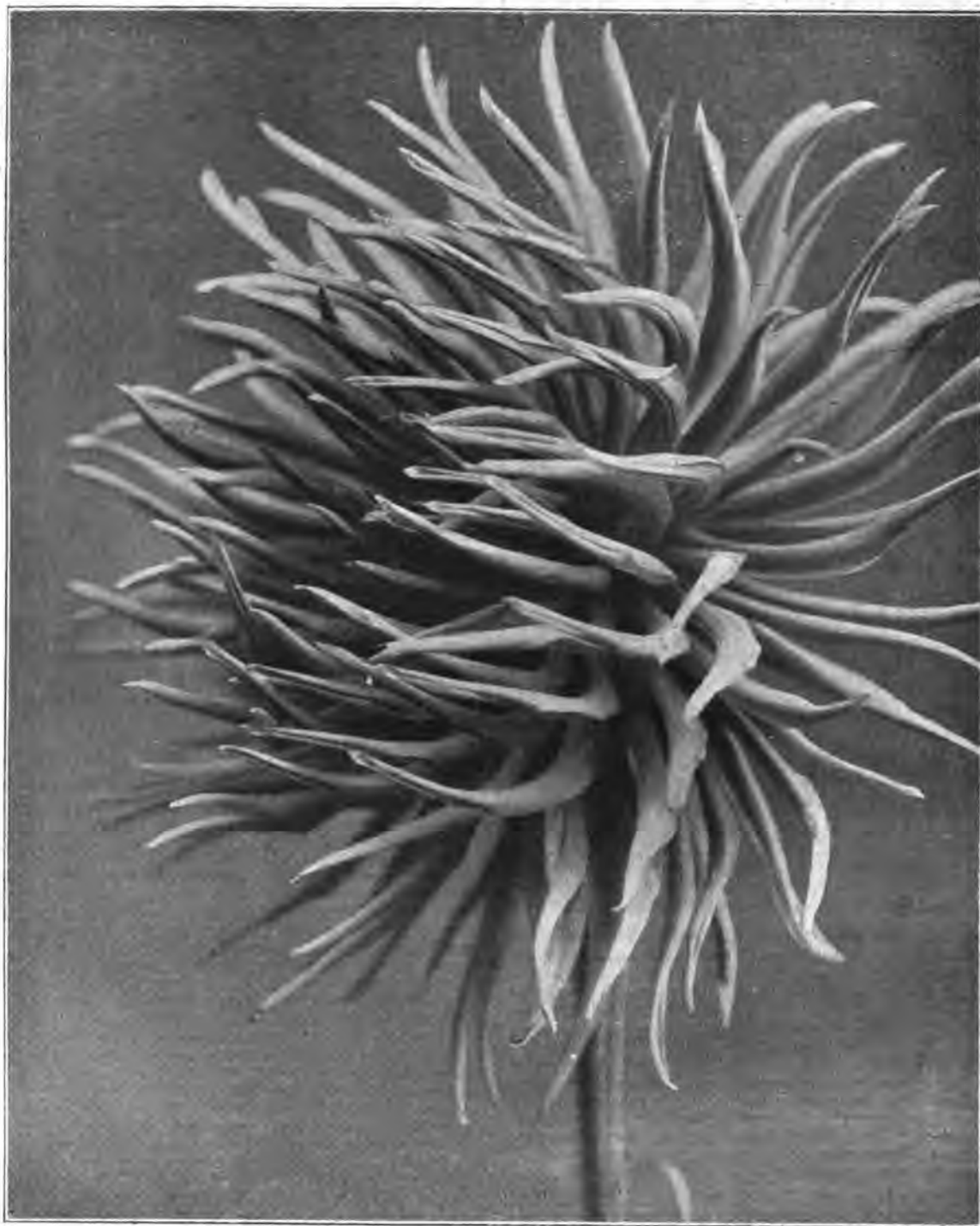
London Dahlia Union have plenty of work before them in the matter of educating both the horticultural and the public opinion about Dahlias and their merits.

By the kindness of the raisers, Messrs. James Stredwick and Son, Silverhill Nursery, St. Leonards-on-Sea, we are privileged to illustrate, at or about their natural size, two new varieties of cactus Dahlias. Messrs. Stredwick have the cactus

Dahlia largely in their own hands, and for years have annually sent out a set of meritorious, certificated novelties. The variety Dr. G. G. Gray is thus described: "The most advanced and graceful type of cactus Dahlia, having a great number of the narrowest needle-pointed florets which incurve and intermingle,

stock to fill all orders with strong, unforced plants. Height 4ft 6in."

The description of the variety Harold Peerman is: "A deep, pure yellow, and one of the most constant, free flowering and reliable Dahlias we have yet introduced. The plants, which are



Dahlia, Harold Peerman.

forming blooms of great beauty. The colour is magnificent, a fiery crimson-scarlet without shading. Plants are very free in flowering, and are of wiry, upright growth. For two years we have constantly exhibited bunches of this, which is in every way one of our choicest productions. This variety was certificated last year, but the early orders plainly indicated the likely demand, and we decided to keep it over until we had sufficient

of easy, sturdy growth, produce a great number of excellent flowers, which are of large size and unvarying good depth. The form is slightly but not strikingly incurved. Very few of our plants last season equalled those of our Harold Peerman, and we feel quite certain that it will prove itself the finest yellow cactus Dahlia, and we strongly recommend it. Height 4ft."

Each has received the highest honours.

Young Gardeners' Domain.

* * The prize is awarded to Mr. R. A. Williamson, 29, Hope Bank, Hulme Hall Road, Cheadle Hulme, Cheshire, for his letter "A Country Ramble." Letters ought, however, to be confined, in all possible cases, to between 500 and 600 words.

A Country Ramble.

I wonder how many of us in these days of bustle and activity, when even our very pleasures must be sensational, can find the time for and appreciate the enjoyment of a quiet ramble in the country. People talk of "rest," and rush about in train or motor car vainly searching for it. I like to find the relaxation of mind and body in an easy saunter by riverside or woodland path, o'er lonely moor or craggy peak, or revelling in the teeming beauties of some shady dell.

Come with me and we will roam together, where the great town has not yet penetrated its iron railroad, like the all-absorbing tentacles of some mighty octopus, nor blemished with its greedy lust for gold. We walk up the straggling village street, with its quaint old inn, and through the little market place, stopping for a moment to examine the age-blackened stocks, those mute traditional witnesses of the severity of a past generation. How quiet and uneventful the life seems here; how dull and monotonous would a town-dweller consider it; yet they have their pleasures, their little romances and silent tragedies, do these stolid, peaceful-looking yokels.

Here is the church. What a beautiful, quaint-looking old edifice it is. How the gate squeaks as it swings back upon its rusty hinges in response to our touch; how the sun strikes upon the beautiful mullioned windows, to be reflected in countless myriads of kaleidoscopic flashes. What a sense of rest and peace hangs over the place. Let us stoop down and scan the surrounding tombstones. Some of them are green with age, and it is difficult to trace the lettering; others are still clean and white, and their clear-cut characters show up boldly. Nothing startling; no grand monuments, but simple stones, simply worded, bearing testimony of quiet lives well lived.

Shall we leave the churchyard with its hallowed dead, and wander down the lane. The little stone bridge spanning the tinkling silvery stream tempts us to stop for a while and ponder over the surrounding beauties of Nature. How wonderful it all is! What a delicious scent of Hawthorn pervades the air; how sweetly the dear birds sing; how gracefully the smiling Bluebells nod their heads before the gentle breeze. It makes one want to Whoop! and shout for the very joy of being alive. What is it the psalmist says? "The earth is the Lord's, and the fullness thereof;" yes, and what a beautiful world it is.

But we must not tarry too long, the afternoon is waning. Let us walk on up the hill, or turn up this little bye-lane towards the farm. It is little more than a cart track, with deeply sunken wheel ruts, and a ditch on either hand. The gate is open, and leads into a cobble-stoned yard, with a slimy pond in one corner, where a number of ducks and geese are squabbling noisily. How nicely kept the garden looks; so carefully netted round to keep out the hens, and what a peculiar old rustic porch, covered with the ever prevalent Ivy. Ah! the dog has heard us, and is letting the inmates know of our approach; we must go round to the back door and ask for a drink of milk.

Take a peep in at the kitchen window. Look at the brightly polished dish covers, and the snow-white plates ranged along the rack, at the brilliant copper kettle on the hob, at the fat comfortable-looking tabby asleep on the rug, and all the other hundred and one little things which are so linked with our memories of an old-fashioned farmhouse.

The milk is deliciously sweet, still warm, and we linger for a moment to chat with the pleasant-faced girl who serves us with it. Then there is a brisk clatter of patters over the tiled floor as the mistress comes to see "What that tiresome girl is gallivanting about now." We pass the glass back with a smile and a cheery "Good day," then turn and wend our way homeward.—R. A. WILLIAMSON.

Trees for Towns.

A town without trees resembles a house without pictures. Extensive planting would find work, and useful work, for many men. In numerous towns only the most common species are planted, no attempt being made to select more suitable or more picturesque specimens. The Maidenhair Tree, Ginkgo biloba, revels in a smoky atmosphere in the more southern parts of England. This is one of the very few cone-bearers that succeed in towns.

At the Tower Gardens, London, several specimens of the Tree of Heaven, Ailanthus glandulosa, are flourishing. This makes growth rapidly during the first few years, and rich soil is not essential for their welfare. Another fast-growing tree is the Lime. Streets furnished with the common Lime, Tilia vulgaris, soon lose the bare appearance left behind by the builders. Elms, again, make good street trees; but what a pity they are of a so

treacherous nature! When aged their branches are liable to snap without warning. Several varieties of Fagus sylvatica, or common Beech, do well in villa gardens. F. s. cuprea and F. s. argenta variegata, together with the drooping F. s. pendula, may be mentioned. Fagus sylvatica itself is adapted for street planting.

Several roads in a S.W. suburb of London have been planted with Robinias, or Locust trees, which appear to be in a thriving condition. Varieties of R. Pseudacacia are used for this purpose. As specimen trees for public parks these rank among the best. Catalpa bignonioides, the Indian Bean, should find a place in all towns. It flourishes on the banks of the Regents Canal, London, where the golden leaves of C. b. aurea show up in fine contrast amidst dull surroundings.

The Horse Chestnuts are suitable for streets, parks, and large gardens, Aesculus hippocastanum, A. indica, and A. carnea are all fast growers. The Sweet Chestnut, Castanea sativa, does well, but proves an irresistible target for children to throw at, in order to obtain the fruit.

Betula alba, the common Birch, and its numerous varieties, are highly ornamental trees. Their slender, flexible habits make a welcome contrast to the stiffness of other trees. They are quite hardy and thrive in poor soil. For planting in the shade of larger trees, or for clumps and screens, the common Dogwood comes in handy. Other varieties, such as Cornus mas, C. alba, and C. florida, make good specimen bushes of from ten to twenty feet in height.

Many varieties of the Oak do well in urban surroundings. Of the evergreen varieties, Quercus cupidata, Q. ilex, or Holm Oak, Q. pseudosuber, syn. Q. Turneri, Turner's Oak, and Q. virens, the Green Oak, should all make healthy specimens in and about our towns and parks. Quercus cerris, the Turkey Oak, Q. palustris, the Pin Oak, and varieties of the common Oak, Q. pedunculata, are suitable deciduous sorts for planting in streets and open spaces. The Crataegus family are well adapted for this class of work. Some really fine specimens of small standard Hawthorns may be seen on Primrose Hill, London. Planted in groups they are most effective, and their profuse array of bright red berries have been much admired this autumn. Varieties to be specially recommended are Crataegus coccinea, C. Crus-galli, C. Douglasi, and C. Oxyacantha, the common Hawthorn, with its varieties.

Many other trees suitable for planting in towns might be mentioned, but space forbids. Almonds, Elders, Poplars, all do well. Some day, let us hope ere long, the smoke nuisance will be abated; then it will be possible to brighten and beautify our streets and parks with conifers and evergreens. At present they are out of the question.—C. H.

Melon Culture under Glass.

To obtain the best results the use of a light house or pit, well heated, is advisable. If a bottom heat of 75deg can be constantly obtained from hot water pipes, there will be no need for fermenting material. On the other hand, obtain a sufficient quantity of leaves and litter to make up a hotbed on which to plant the Melons. On the top of this place pieces of zinc or slates, and by so doing one has the Melons more at command. The seed should be sown quite a fortnight before the house is in readiness, and for this purpose small pots should be used, placing two seeds in each pot. When the plants have formed their first rough leaf they are ready for planting. Rich fibry loam chopped up about the size of one's fist should be used, adding to this a small quantity of old mortar rubble. Place the soil in mounds, putting about half a bushel for each plant, at a distance of 15in apart. When the soil has been in the house for twenty-four hours it will be nicely warm and ready to receive the plants. In planting only just cover the ball of the plant, leaving the seed leaves well above the soil. Put a small stick to each, otherwise they are apt to be broken when syringing. Now we must maintain a temperature of 65deg by night and 75deg during the day, allowing a rise of 10deg or so from sun heat. The plants will need syringing, the walls and paths also to be damped occasionally to maintain a moist and growing atmosphere. Water the plants when necessary with clear water at the same temperature as the house, at the same time keep it about 3in from the collar of the plant. It is a good plan to sprinkle a little fine charcoal around the collar of the plant to absorb the moisture. As the roots appear on the surface just cover them with loam, or the hot sun will scorch them. As growth advances rub off the small side growths, until the main shoot reaches the wires. When the plant has grown the desired length pinch out the point; this will cause the laterals to grow more freely. These generally show fruit blooms at the first leaf, and should have the point pinched out at the first leaf beyond. Should the blooms on the earliest laterals show before the remainder, it is best to stop at the first leaf, making them break again, so as to obtain a good set of fruit; for should the bottom fruits be set first they invariably take all the support, causing the ones furthest from the root of the plant to wither.

To obtain a good set of fruit chose a bright day when several

blossoms are expanded at the same time, insert into each a male bloom, keeping the atmosphere on the dry side for a few days. The blossoms which are fertile will quickly swell away, and should be encouraged by giving to each plant a good top-dressing, using the same compost as advised before, adding to each bushel of loam a 6in potful of some approved fertiliser, such as Le Fruitier. Now that the fruits are set, close the house in good time, so that with sun heat the temperature will rise to 90deg or thereabout. At each alternative watering a little assistance may be given the plants in the way of manure, always taking great care to err on the side of giving too little rather than too much. Keep the growths tied evenly and securely, also let the plants make new growth, but avoid it becoming too dense. When the fruits have attained the size of hens' eggs support them with pieces of raffia, or better still, by means of nets which are made solely for that purpose. As the fruits begin to show colour gradually reduce the amount of water at the roots, at the same time keeping the atmosphere rather drier, also admit more air, leaving a little chink on at night. This will greatly improve the flavour. As soon as the fruits are ripe they should be cut, always discernable by a cracking of the skin around the stalk of the fruit. Place the ripe fruit on a shelf in an airy position for a few hours; this will also add to the flavour.—J. B.

Bothy Life.

As "F. G." says on page 320, bothy life is pleasant, and especially so if one has the fortune to get into a good one. But I would like to ask if the bothy is as much benefit to the average gardener as it is thought to be. I refer to the popular belief, that because one lives in a bothy they are believed to stay in at night after work is over to read up and study the various branches of horticulture in which they happened to be engaged. Now, I do not want to be sarcastic, but from my own personal experience this is far from the case. I have been in both good and bad bothies, and must confess that with the exception of the man "on duty" the bothy presents a very lonely appearance in the evening, in fact it is often the case that after about seven or eight o'clock at night one does not see his fellow "lodgers" till starting time the next morning; and strange though it may seem, there was more studying done in the bad bothy than the good ones I have been in. "F. G." says arguments can be indulged in which will end in books being brought down. I presume he means horticultural books. Now, I do not want to say that horticultural arguments do not take place, but alas! how rare they are. More often they are on some such matter as the Grand National, the Boat Race, Hackenschmidt's measurements, how long will the Radicals hold out; or, Who will win the Cup tie? or one of the hundred various items of the day. Some may think I am talking strong, and that I am against arguments; on the contrary, as some of the readers of this letter know. But I really think arguments relating to our work will not only make the bothy life more pleasant, but also more profitable.—F. CAVES, Holker Gardens, Lancs.

Propagation of Tree Carnations.

The tree Carnation is regarded by all lovers of flowers as one of the queens of winter-flowering plants. When we take into consideration its usefulness for decorative purposes, and its adaptability for florists' designs, it is well worth the care and attention it requires. I will confine my remarks to the propagation of these plants only. Strong hard cuttings play a leading part in their successful propagation, which may be obtained in the following manner: Plants that have flowered one season and have grown too leggy for potting on for another year, should be cut back to about 8in or 9in from the stem, about the end of June, and be placed outside. In a few weeks' time they will commence to break, and by the end of September a plentiful supply of cuttings may be had. If hard weather sets in remove the plants to a cool frame and protect in the usual way.

Cuttings obtained in this way are better adapted for early propagation than those taken from plants growing in the house. They are stronger and hardier, and at the same time it saves the flowering plants from being stripped of their grass at a time when they can ill afford to lose it. I always like to get the first batch of cuttings put in about the middle of November, and keep following on as cuttings are obtainable. A suitable compost is one part loam and one part leaf mould put through a quarter-inch sieve, and two parts silver sand. Take every cutting with a heel, and insert them singly in thumb pots; firm the cuttings with the thumbs, and not a dibber; water them in with a fine-rosed can, and put in the propagating frame. Plunge the pots up to the rim in peat moss or any other plunging material, and maintain a gentle bottom heat of 65deg to 70deg. Spray the cuttings daily, and always have a chink of air on the frame to admit of any condensed moisture, which is nearly always in evidence. Cuttings served in the above way will root in the course of three weeks to a month's time. Good variety are Fair Maid, Enchantress, Lady Bountiful, S. J. Brooks, T. W. Lawson, Robert Craig, Geoldys, and a few others.—F. J. S.

Schedules Received.

Hemel Hempstead Horticultural Society; secretary, Mr. George Burrows, Shendish Gardens, Hemel Hempstead, Herts. The forty-ninth annual exhibition and fête will be held in Bury Grounds, on August 19.

The National Dahlia Society; secretary, Mr. H. H. Thomas, 68, Shakespeare Road, Hanwell, Middlesex. The annual exhibition will be held at the Royal Horticultural Hall, Vincent Square, Westminster, on September 3.

National Auricula and Primula Society; secretary, Mr. T. E. Henwood, 16, Hamilton Road, Reading. Thirty-first annual report and schedule of prizes for the forthcoming show in the R.H.S. Hall, Westminster, on Tuesday, April 28.

Lydney Horticultural and Cottage Garden Society; joint secretaries, Mr. F. W. Harris, The Cross, and Mr. W. E. Birt, Church Street, both of Lydney, Gloucestershire. The third annual show will be held in the Town Hall, on Saturday, July 25.

National Chrysanthemum Society; secretary, Mr. Richard A. Witty, St. James's Villa, Swains Lane, Highgate, London, N. The early autumn exhibition is fixed for October 7 and 8; the mid-autumn show for November 4, 5 and 6; and the early winter show for December 2 and 3, each at the Crystal Palace.

National Carnation and Picotee Society; secretary, Mr. T. E. Henwood, 16, Hamilton Road, Reading. The thirty-first annual report and schedule of prizes for the forthcoming exhibition in the Royal Horticultural Hall, Vincent Square, Westminster, on Wednesday, July 22. There are many new classes for undressed flowers; classes 36 to 45 in the third division, and especially classes 50 to 58 in the open classes.

Publications Received.

Nitro-Bacterine for Inoculating Leguminous Crops. Review of Reviews, London; price 3d.

Soils, Their Nature and Treatment, by Primrose McConnell. The "Complete Farmer" Library, Cassell and Co., Ltd.; price 1s. net.

Essex Education Committee. Higher Education Report, 1907. Part I.—Handbook and Regulations. To be obtained at the County Offices, Chelmsford.

Undressed Rice, the staple food of Oriental nations; all about it, and how to use it, by James Henry Cook, 183, Corporation Street, Birmingham; price 1d., 1½d. by post.

Symons's Meteorological Magazine, No. 506, vol. 43; March; price 4d. Chief contents: Hygrometers without calculation; on the learning of meteorology; weather and rainfall of February.

Agricultural Statistics, 1907. Vol. XLII., part II. Returns of produce of crops in Great Britain, with summaries for the United Kingdom. Board of Agriculture; or through any bookseller; price 4d. net.

Twenty-fifth annual report of the Metropolitan Public Gardens Association, 83, Lancaster Gate, W. Price 6d. It is needless to say that no society does more useful work than this one; and its objects are to be commended.

Field Experiments in Shropshire and Staffordshire and at the Harper Adams Agricultural College, Newport, Salop. Joint report for season 1907. Pages 17 to 28 embrace the horticultural section, to which we may allude shortly.

Quarterly Journal of Forestry, April, 1908. No. 2, vol. II.; price 2s. Contents:—Notes on Irish woodlands; planting sand-dunes at Holkham; Hainault Forest; conversion of Ash under-wood into high wood; forestry exhibition at Lincoln; history of lumber industry in North America; trees and their life-histories; Indian forest utilisation; forestry in encyclopædia of agriculture; German arboriculture; report of the Forester, 1907, United States of America; the Black Walnut, a reprint; sales of timber.

Shropshire Horticultural Society; annual statement of accounts, report, and list of members. This is published apart from the schedule of the August and other shows. The report states:—The total receipts from all sources amounted to £5922 12s. 8d., being £283 17s. 5d. in excess of 1906, which year was higher by £400 8s. 4d. than any previous one. It is gratifying to see that the number of annual subscribers steadily increases, the subscriptions this year amounting to £530 11s. 0d. The takings at the gates on the two days were also greater, amounting to the sum of £3485 4s. 3d., as against £3317 10s. 11d. in 1906. A full audited statement of account will be laid before the society, and will be embodied in this report, by which it will be seen that the balance of assets in 1907 amounts to £786 11s. 0d. The committee regret to report that in consequence of certain technical and legal difficulties raised by the Board of Trade, it has not been found possible to carry through to a successful end the proposal to register under the Companies' Act, 1867, mentioned in the last report; and the matter has therefore been dropped for the present.



Fruit Culture Under Glass.

EARLY MELONS.—During the past few days the weather has not been favourable for these plants, and more fire heat will have been required to maintain the necessary temperature, and to prevent the attacks of insect pests more atmospheric moisture will have been required. At this stage the fruits of pot plants are a fair size, and should get liberal supplies of liquid manure. Dryness or a check in any form will prevent the fruits swelling freely. The temperature at night should not now be lower than 70deg, with a rise of 10deg by day, and a liberal addition in fine weather by sun heat, closing early and damping down freely.

LATER PLANTS.—These will be setting, and at this date there should be no difficulty in getting plenty of fruits at one time. This is a point the young beginner must not overlook. With liberal treatment Melons grow so freely that there is no difficulty in getting three crops in one house in a season. Much the same advice is applicable as regards heat and moisture when the fruits are set as advised above. A few degrees lower temperature, say 5deg to 7deg, is suitable. Seed should be sown for succession, and for this purpose I prefer such kinds as have a good depth of rich flesh. Syon Perfection, Blenheim Orange, and Hero of Lockinge are splendid for summer work. Plants in frames, if sown as advised a month ago, should be ready to plant out. The linings may be added too if the warmth declines, and the glass at night should be well covered. Much moisture will not be required for a time, till root growth is active.

STRAWBERRIES.—The plants ripening their fruits may with advantage get a cooler temperature and a drier atmosphere to get the best flavour. The fruits finished in a hot, steamy house invariably lack flavour. Plants just set should be thinned at this date, and more fruits may be allowed than for the earliest lots, but even now it is not well to overfruit, as they lose size and finish. Liberal supplies of food should be given to plants swelling their fruits, and at no time should they suffer for lack of moisture.

LATER SUPPLIES.—It is not advisable to keep the plants too long in the open, as though required late, they are much better in cold frames, as ample ventilation may be afforded. I am sorry to note this season that some growers who did not plunge their plants in the late autumn have suffered severe loss, as the sharp spell of cold weather split the crowns, and also hurt the roots. Unprotected pot plants suffer much more than those planted out, or plunged.

TOMATOES.—The plants that have set their fruits freely may now be fed liberally, and be closely stopped. At the same time, it is well to add some rich top-dressing to plants in small pots; this saves watering, as the plants do not dry so quickly. Plants for succession should be potted on before they get pot-bound. Seed may be sown for June planting, and for this purpose the new Carter's Sunrise is excellent. The plants for early summer supplies should be grown as hardy as possible.—G. W., Brentford.

The Flower Garden.

SWEET PEAS.—The ground having been previously prepared and the young plants well hardened, they should now be planted in their flowering quarters. Whether they are set out in rows or clumps may be decided by the cultivator, equally good results being obtained by both methods. Do not plant too thick; many Sweet Pea exhibitors recommend setting them out 1ft apart. For garden decoration or to cut in armfuls this is obviously too thin, unless the ground is very rich. Presuming we have five plants in each pot, these may be put 18in apart in rows, or three pots to a clump. If not already supported with a few twiggy sticks, these should be given till tall stakes, preferably Hazel, are provided. Protection from slugs and birds must be given the seedlings which are pushing through the ground. A dusting of soot for the former, and black thread stretched over the plants for the latter are recommended.

SPRING-FLOWERING PLANTS AND BULBS.—The cold, unfavourable weather is retarding very much the development of these plants. We are busy hoeing the ground between them, staking the Hyacinths, and edging the beds, hoping from day to day that the weather will improve. After a week or more of warm weather to fairly start the plants into new vigour, a dressing of fertiliser, Clay's manure, or liquid animal

manure, will be very beneficial to Wallflowers, Polyanthus, Iberis, Pansies, Violas, &c.

TRANSPLANTING.—During the next few weeks is a suitable time for planting evergreen trees and shrubs. At this season, as new growth begins, they move better than at any other time. If possible select warm showery weather during which to do the work. Hollies, Yews, evergreen Oaks, and bamboos are a few of the subjects to be dealt with. Select warm sheltered positions for bamboos, and also a fairly moist loamy soil. Groups in the woodland and along the margins of lakes and streams are suitable for them.

VASES AND WINDOW-BOXES.—Unless these are exceptionally large, it is very convenient to have two sets of pans made of tin for the vases, and boxes for the windows, so that the plants can be thoroughly established before placing them where they are to flower. If pans or boxes of Marguerites, Ivy-leaf Pelargoniums, &c., are made up now and placed in frames for a week or two, they will make a show as soon as the plants at present in the vases are over, usually towards the end of May.

FORCED PLANTS AND BULBS.—Many of these will be very serviceable in the wild garden if stood in a sheltered position for a few weeks previous to planting out. These include Tulips, Hyacinths, Narcissi, Crocuses, Spiraeas, Dielytras, Solomon's Seals, and variegated Funkias.

GENERAL REMARKS.—Prune *Jasminum nudiflorum*. Prick off annuals sown under glass either into cold frames or in shallow boxes. Bedding Pelargoniums may now be placed in unheated frames, covering them with mats on cold nights. This will make room in the pits and warm frames for Iresine, Coleus, and other recently propagated bedding stuff. The Begonia tubers started in boxes are ready for potting off singly. Use plenty of flaky leaf mould in the compost. Sow seeds of Aquilegia on a sheltered border. Continue to thin the growths of plants on the herbaceous borders as they become large enough.—A. O., Kew, Surrey.

The Kitchen Garden.

VEGETABLE MARROWS.—By the time this is in print the first lot of plants may be planted on a heap of half-spent Mushroom-bed manure, and handlights placed over them at night. It is a very good plan when moving the manure which has been used for forcing Rhubarb or Seakale, to place it in a heap, adding a small quantity of fresh horse droppings to induce a little heat, and to plant the Marrows on this. If movable tops are used, these may be taken off on warm days, and be placed on again each night without fail. A garden mat may also be thrown over the lights to keep the plants snug. The nights will be cold for some time to come. Those planted in frames will require careful attention in the matter of airing and watering. Use tepid water at all times in order to keep them growing. Set the first three or four female flowers which show, and nip out the points of the growths on which these are growing.

FRENCH BEANS IN FRAMES.—Another batch of these can be planted to succeed those of some weeks since. No difficulty need be experienced in growing these in cold frames from the present date onwards. Any frames which have been cleared of Asparagus roots will answer first rate. Make the soil fairly rich and moist before the Beans are planted.

CELERY PLANTS.—The earliest of these will need pricking off. They may be pricked into other boxes, or into a spare frame, which would be far better. Use good and finely divided soil; shade the plants on bright days for a few days, and keep them syringed lightly to induce the plants to root quickly. As soon as they begin to grow freely give an abundance of air, and as the days become warmer remove the lights entirely, to be placed on at night.

SPRING-RAISED CAULIFLOWERS.—The plants raised since Christmas will now be ready for planting out, and should be got out as soon as circumstances will permit. They should not be allowed to remain in pots or boxes one day longer than can be avoided. A check brought about by overcrowding, or from the roots being cramped in small pots, will cause buttons to form, or premature heading. A little shelter may be necessary in exposed places. The covering may be removed altogether from those planted some time since. A little soil may then be drawn up to the stems.

PARSLEY.—Plants raised in heat early in the year should by this time be large enough to plant out on a warm border. The plants in frames should receive an abundance of water.

TURNIPS, CARROTS, LETTUCES.—It is most important that overcrowding should be avoided. Thinning may be attended to at the earliest possible moment. Frequent waterings will be necessary as the weather becomes warmer, and an abundance of air given. The lights may be taken off on warm days. A little seed of Turnip should be sown on a warm border.—A. T., Cirencester.

TO CORRESPONDENTS

All Correspondence relating to editorial matters should be directed to "THE EDITOR," 12, MITRE COURT CHAMBERS, FLEET STREET, LONDON, E.C. Persons sending manuscript or photographs, when not specially requested by the editor, and making no demand for remuneration, are presumed to solicit publication without payment. In order that no misunderstanding may arise, and in order to secure the return of their contributions, contributors should state the fact that they expect remuneration, and in all cases, even when contributing voluntarily, correspondents should enclose a stamped envelope if they expect their enclosure to be returned.

SAMPLES OF MANURES (E. L.).—It is difficult to identify fertilisers. No. 1 appears to be the article known as Vaporite; No. 2, lawn sand, used for dressing lawns; No. 3, Clay's fertiliser, excellent for top-dressing and mixing with potting soil.

CYCLAMEN LEAVES (E. L.).—The leaves are affected by the rust mite (*Tarsonymus tepidarium*) a very pernicious pest, as by its punctures the tissues of the leaves are so injured that the parts turn brown and are retarded in growth. It is one of the most difficult to combat of pests, the best treatment being dipping the plants occasionally in tobacco water, that of tobacco juice being best, diluting to about the colour of mild ale with soft water. The plants may be sprayed, but as the pests are mostly located on the underside of the leaves the spray should be delivered upwards, so as to wet the foliage on the underside. Dipping is most convenient. This should be done at intervals of four days to a week two or three times, in order to free the plants from the pests; and treatment at periods of three or four weeks will usually keep them at bay.

SUPERPHOSPHATE OF LIME (X. Y. Z.).—There are superphosphates and superphosphates of lime, as you rightly conclude. 1. Dissolved or vitriolised raw bones, known as "dissolved bones," made entirely from pure raw bones and vitriol, without the addition of either mineral phosphate, gypsum, or even steamed bones, retain all the ammonia present in the bones, and come into action much more quickly than undissolved raw bones. They have also the advantage over mineral superphosphates of supplying ammonia and phosphates excellently blended together by Nature, whilst the dissolved bones, being in all degrees of decomposition, from actual solubility in water to undissolved bone, provides successively for the various stages of the plant's growth. The effects, therefore, are more lasting than is the case with ordinary superphosphates, while the bones so prepared have the advantage over raw bones of not being carried off by rooks. The pure vitriolised bones are treated with a small proportion of sulphuric acid. Dissolved or vitriolised are manufactured some time before they are required, in order that they may become mellow in the heap. Their action is well maintained throughout the whole term of growth of the crop, not only if applied in spring, but in the case of autumn application also. The superphosphate so prepared is in a fine and dry condition, and is the form that should be used for fruit trees—that is, Tonk's manure. 2. Dissolved bone compound—a superphosphate made usually from mineral phosphates and a proportion of bones, partly to supply phosphate in a quickly-acting form, and to sustain this longer than would be the case were mineral superphosphate alone used; but the chief consideration is the providing of a superphosphate supplying some ammonia at a lower price than that of vitriolised bone superphosphate. The nitrogen in this (dissolved bone compound) is three-quarter to one and three-quarter per cent.; soluble phosphates from bone six to ten per cent. This superphosphate may be used for crops generally, but it is better to get dissolved bones, and if desired, mix mineral superphosphate with it. 3. Mineral superphosphates, on most soils containing a sufficiency of lime, are generally found to be the most certain and economical form in which phosphoric acid can be supplied, particularly where soluble phosphate is principally required, such as on clayey land, and in late growing districts. On land of this character, and where stable or farmyard manure has been spread in autumn, a dressing of three to six hundred-weight per acre of superphosphate often answers better, or as well as the most costly mixtures of phosphates with nitrogenous manures. The higher percentages of mineral superphosphates have the advantage over the lower, on account of their great concentration. On the other hand, the lower qualities usually

answer better on light land deficient in lime, in consequence of their less acid character and greater bulk. The mineral superphosphate most largely used is twenty-five to twenty-seven per cent. soluble, and it should be supplied in good, dry, powdery condition, quite ready for use, and well riddled before delivery. Mineral superphosphate is usually that meant in combination with other ingredients for crops generally.

SPOTS ON PALM LEAVES (P. H.).—The brown spots are caused by the fungus named *Pestalotzia phoenixis*, which produces large irregular blotches on the leaves. The disease is a very difficult one to combat, as fungicides appear to have little effect on the mycelium. Touching the spots with a solution of copper carbonate and carbonate of ammonia, known as ammoniacal solution of copper carbonate, has a good effect, and in the case of Camellias, the leaves of which are affected by a closely allied fungus, dabbing the affected parts by means of a bit of sponge with methylated spirit, diluted with two parts rain-water, has had a good result. The leaves that are affected should be cut off and burned at once. Probably the fungus is induced or favoured by the damp and close conditions of the atmosphere, the plant not having sufficient light and air for the solidification of its growth, while moisture resting on the leaves affords the fungus germs opportunity of pushing their germinal tubes into the leaf tissues.

LAPAGERIA UNHEALTHY (M. D.).—There are two main reasons why these plants are often in an unsatisfactory state in pots:—1. Close soil not sufficiently drained, and hence sour. 2. Pots so densely crowded with roots that the plants do not receive adequate support. *Lapagerias* usually grow best planted out in a bed at least 18in deep, the bottom 6in being of drainage, broken clinkers and charcoal being excellent, the remainder springy turf peat and loam, twice the quantity of the former, with a liberal admixture of charcoal, the whole to be pressed down as firmly as the turfy nature of the compost permits. A bed thus prepared can scarcely be made sour, due provision being made for the free exit of water from the drainage, and when the soil is permeated with roots it is not easy to give too much water; until then water must be given more sparingly, yet the soil should never become at all dry. If you prefer growing the plant in a pot, prepare the soil similarly. In the event of your plant not having rooted freely, it will be advisable to remove a good part of the old soil, which will be sour, and give fresh as suggested, thinning out and shortening wiry growths to the best buds you can find, syringing the plant twice or thrice a day according to the weather, to prevent excessive evaporation from the leaves, and so assist the emission of fresh healthy roots, which alone can invigorate the plants. We know of *Lapagerias* that grow luxuriantly and flower profusely on the north side of greenhouses.

NAMES OF PLANTS.—*Correspondents whose queries are unanswered in the present issue are respectfully requested to consult the following number.* (E. T. L.).—1, not identified; 2, *Cryptomeria elegantissima*; 3, *Thuyopsis dolabrata*; 4, *Retinospora plumosa aurea*; 5, *Cupressus Lawsoniana*; 6, *Retinospora plumosa*; 7, *Cupressus Lawsoniana pendula*; 8, *Berberis Mahonia japonica*. (S. F.).—Glory of the Snow (*Chionodoxa luciae*). (G. G., Ascot).—*Rhododendron Veitchianum*, very fine.



Soils.*

A book has been published by Messrs. Cassell and Co. on "Soils," and we are sure that it deserves the serious attention of every farmer who is not entirely satisfied with his own success in the production of saleable farm produce. We have always argued that a great deal of agricultural waste is caused by ignorance of the nature of soils, and of their adaptability for growing certain crops.

There is a great outcry just now for small holdings and allotments. We have already questioned the practicability of placing the applicants on the holdings which they desired, so that they could make a comfortable living, and the bone of our contention lays in the indisputable fact that knowledge of the soil and its capabilities is a closed book to all but a select band of experts. We do not contend that farmers generally are

* Soils, their Nature and Treatment, by Primrose McConnell.

ignorant of the capabilities of the soil, but those who have a thorough insight into the capacities of different soils for producing, or failing to produce, various crops, and can give the reasons for success or failure, are indeed very few and far between.

The farmer who has been brought up on one class of soil and has a long experience of it, as a rule knows the capabilities of it and the most profitable crops to cultivate. His knowledge is gained from practical experience, but he would often be clumsy in explaining to a stranger the reason why his land was suitable for some crops and not for others.

We have known many farmers who have migrated from one district or county to another, sometimes for better, sometimes for worse. Usually a man under such conditions has to say little, but watch the procedure of his new neighbours. He may teach them something after a while, but at first he will be wise to imitate the methods which experience has taught them to be the best. They practise that which they believe to be most profitable, but can very seldom explain why success is achieved.

We have known farmers become disgusted with the heavy labour of strong land, and the constant watchfulness necessary to the successful working of it, and go off to poor sandy districts where land work was light and easy, but the crops more than light in proportion. Moreover, the belief that poor light soils only need high cultivation to yield abundant crops has been the cause of many a farmer trying the costly experiment and bitterly repenting, having left a country which, though dirty and laborious, yet gave good returns for labour and money invested.

Mr. McConnell's book will be of especial value to farmers who are thinking of pitching their tents in new surroundings and under new conditions; but it is also well worth the consideration of any farmer who wishes to increase his technical knowledge and will give sufficient time for a careful study of it. The cost in a paper cover is but 1s. To show how comprehensive it is we will give a rough sketch of its contents:—The soil itself: origin, formation, composition, classification, distribution, fertility; the physics of the soil; the physical geography of the farm; the improvement of the soil: draining, stone clearing, liming, irrigation, manuring; the tillage of the soil: ploughing, cultivating, harrowing, rolling.

We will make a few extracts to illustrate the details of the work. We often hear the expression, "a good tilth." Mr. McConnell explains this in a very interesting way as follows: "Nearly every soil within the top nine inches or so contains enough fertility to grow a hundred crops if it can be got into a soluble or accessible state, and the acts of husbandry are all for the purpose of pulverising, mixing, aerating, and otherwise making what we call good tilth." "It has been abundantly shown by experience that a rich soil will not grow good crops without proper cultivation, while an inferior one will often grow fairly good crops if the tilth is all that it should be." "Everything points to the fact that in the growth of the artificial plants which constitute our farm crops, tilth comes first, fertility of the soil second, and manuring third, and the modern tendency is to cultivate more, and manure less." We have often warned our readers against skipping various ploughings and items of cultivation as unnecessary. We often hear labourers remark when discussing Mr. So-and-so's poor crops, "Ay! well, you see, he doesn't half work his land." Mr. McConnell says, "Even the temperature of the soil is raised a degree or two when well tilled."

Everyone of the sub-chapters on tilling the land is full of wise practical knowledge, showing that Mr. McConnell is writing not from theory, but experience. Although the chapters are short, there is an immense amount of information compressed into them, and the reader is not required to wade through a mass of long words to find what he is looking for.

As regards rollers, we read, "With ribbed rollers there is a line of compression and a line of loose soil left in alternate 3in strips, made by the flutings of the ribs. It follows, therefore, that many of the disadvantages from wind velocity, want of a mulch, and so on, are obviated by the use of rollers of this description. Such rollers are mostly used in the drier districts of England."

The concluding chapter gives some most valuable advice to any farmer inspecting a farm with a view to eventually renting it. This chapter alone is worth the shilling.

Work on the Home Farm.

Everything is favourable for work on the land, and good progress is being made in all ways except one. Nature, however, is not doing her part as we could wish. April, as its name suggests, should be the sunny month. So far it has been the month of cloud. We have had no more rain or snow, but the land is very cold, and nothing grows except grass and seeds, and these only in sheltered places.

There was very little barley sown early this year, and very little of it is up sufficiently to attract the eye. We never knew barley lie so long in the ground. With wheat also in such a

backward state, there is a poor prospect for anything but a late harvest. It seldom happens that a late harvest is as good as one as last year's, but we must hope for the best.

Although there is a fair bite, the fields are not suitable for young beasts for more than a few hours, and they are better under shelter at present. Older cattle which have been hardened off and are full of hair may stand the cold better, but we do not like to see them huddled under the hedgerows with their backs up, and apparently in a state of misery. There is plenty of hay left, and it is worth more to give to cattle than it is to sell. Plenty of good cow hay will not fetch 40s. a load at present. To use it at home and make more manure must be a better policy than selling it and buying cake.

Milk is more plentiful in spite of the cold, and butter is cheaper. When the price drops much below 1s. per lb, farmers in out-of-the-way districts, where a milk trade cannot be done, will turn their attention to calf rearing. Calves have sold badly until Easter approached. Now good ones will fetch more money, but will be worth their cost, when a newly-calved heifer can rear one in addition to her own, and she is a very poor milker which will not do that. She must, however, be quite satisfied to adopt the stranger before she is allowed to go out to grass with the pair.

Potatoes and Prices.

Now that new potatoes from the Mediterranean and the Channel Islands will be arriving in increasing quantities weekly, no further increase in the price of last year's crop is to be anticipated. Thus the expectations entertained at the beginning of winter of inflated values have not been fulfilled. The limited yield and the indifferent quality of the supply last year justified growers in counting upon high prices for tubers of the finest quality, and even now it is not easy to explain the cause of the disappointing returns. Although expectations have been disappointed, the markets have not been unfavourable, as in ordinary seasons, and in the absence of visionary famine prices, growers would be well satisfied with the 80s. to 90s. per ton now being obtained. A normal yield at these figures would leave a good profit, but unfortunately last year many harvested little more than half a crop, while in many other instances the quantity of marketable tubers was further reduced by disease, although subsequent results indicate that the loss from this cause was less than was expected. While the prices for culinary potatoes fell short of calculations, growers of seed tubers have been obtaining high rates, Scottish and Irish growers benefiting enormously on this account. The proved superiority of seed from a colder and later climate has caused a rush upon northern supplies, with the result that prices approach a prohibitory level. Altogether the potato harvest of last year, while not fulfilling expectations, has been a satisfactory one, the increase in price more than compensating for the reduction in the yield as compared with the preceding year.—("Times.")

Twelve Months' Laying Competition.

Six months have now elapsed since the competition promoted by the Utility Poultry Club began, and the figures of the egg yield of the birds are now available. Twenty pens of six hens each hatched last year are taking part in the contest, which is being held under the management and personal supervision of Mr. E. W. Richardson, at Stocks Farm, Rayne, near Braintree, Essex. The total number of eggs laid by each pen for the six months ending March 31, 1907, is as follows:—1st, white Wyandottes, 532; 2nd, ditto, 503; 3rd, ditto, 502; 4th, ditto, 466; 5th, ditto, 437; 6th, white Leghorns, 428; 7th, white Wyandottes, 426; 8th, buff Rocks, 422; 9th, white La Bresse, 371; 10th, white Wyandottes, 362; 11th, white Wyandottes, 355; 12th, black Wyandottes, 344; 13th, buff Rocks, 329; 14th, barred Rocks, 327; 15th, buff Rocks, 321; 16th, Houdans, 318; 17th, white Leghorns, 316; 18th, ditto, 256; 19th, partridge Wyandottes, 227; 20th, white Leghorns, 207. The number of eggs laid during the month is, as might be expected, considerably larger than that of any previous month. The 4th, 2nd, and 12th pens laid 126, 125 and 121 eggs respectively, while a buff Plymouth Rock hen in the 8th pen laid 27 eggs in the 31 days, she had, however, only laid nine eggs during the other five months, so can hardly be said to have redeemed her character. Forty-four birds have laid twenty eggs or over during the month. Three of the birds have unfortunately died; two in the 11th pen and one in the 13th. The birds will be replaced by others, but this arrangement is unlikely to fully compensate, as the substituted birds will take some time to get used to the new surroundings. The three highest scores for the six months are 128, 126, and 122 eggs laid by a white Wyandotte and two buff Plymouth Rocks. Broodiness has been most prevalent in the La Bresse and partridge Wyandottes, and remarkably slight amongst the white and black Wyandottes and buff Plymouth Rocks. The weather has not been good, the snow in the earlier part of the month making the ground very wet and cold.

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Journal of Horticulture.

THURSDAY, APRIL 30, 1908.

Potting and Pottering.

ANY people, with an intimate knowledge of all that pertains to the various branches of gardening, think that there is all too frequently a certain connection between the above terms. Pottering is not in any sense a felicitous term, nor is it confined in its application to potting alone. There are many operations connected with the work in gardens that can, in slipshod hands, be caused to come under this rather undignified, but expressive term.

Where much work has to be done in the potting-shed or at the potting-bench in different houses, it is ridiculous to expect to make any considerable headway when proper preparations have not been made. We have seen men commence to pot with an insufficient number of pots, without the requisite number of labels for their plants, and with only a very small proportion of the soil in readiness. It may not always be easy to have all these requirements thoroughly provided beforehand, but it is certainly pitiable to see efforts wasted in breaking off from the work in hand to supply first one and then another want. We have seen pots being washed and put out in the sun to dry while the potting of a batch of plants has been in progress, the batch not completed until the said pots were dry.

This opens up a subject that some time ago caused quite a strong discussion in these pages—to wash or not to wash pots; or was it to leave them stacked outside for the weather to wash them? For our part, at this time of year, when batches of plants innumerable must of necessity need repotting, we like to see a well-filled rack of thoroughly clean pots behind us in readiness for use. It may not be out of place to warn the unguarded against the danger in using wet pots. Dirty ones, provided they are well rubbed out, are far preferable to those not properly dry at the time of using.

In transferring plants from one set of pots

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No. 1:53.—Vol. LVI. THIRD SERIES.

to another, we prefer to cause as little disturbance as possible to the roots. Advice has often been given that the roots upon the outside of the ball of earth ought to be loosened before placing in the larger pot. This seems to be pottering pure and simple. We have never seen any good arise from the loosening thus recommended, as compared with less tedious methods.

Then many and wonderful have been the concoctions of soil or so-called composts recommended for use, especially in days gone by. There seems to be a general desire for less complicated mixtures in these days. Some growers condemn the practice of mixing artificial manures with soil for potting. For strong, quick growing stuff in sturdy health, there need be no fear of injury if the fertilising agents are used with discretion—rather the reverse in rapid vigorous growth. Many tender plants, however, are best potted in sweet mixtures of earth, to which no stimulant is added. In the actual work of potting it is frequently advised that the soil be made firm or rammed. In the old days we were compelled to ram peat around Heaths and Azaleas, the peat having to be driven into the narrowest compass, as the "shifts" were of the smallest. We cannot say the time was wasted, as the plants were splendid examples of health and good culture, but a batch seemed an unconscionable time undergoing operation. Are we more slipshod in such matters in these hurried times? and is this the reason of our inability to grow this class of plants as well as formerly? In answer to these questions the latter explanation would not wholly be found satisfactory. Certain it is that ramming or making firm may be easily carried to excess in dealing with heavy loam. Candidly, we do not like heavy loams for potting purposes, and when they must perforce be used, more opening material should always be added in mixing, and the use of the rammer must be carefully regulated, or there will be stunted "anemic" plants.

In the management of gardens, as a rule, we cannot believe there can be much of what is known as "pottering." The demands of modern establishments are too great to allow of much waste of labour or material, but the young man with fresh responsibilities recently placed upon his shoulders, may, in his very enthusiasm, be led into errors. In his desire for cleanliness, and also for early crops from his land, he may rush on to the latter when it is far from being in suitable condition for working, when an older head would keep his labour at what at first glance many folk would consider but frivolous employment in washing pots and other items of preparatory labour. But it is much better to work in this direction than to allow ill-directed enthusiasm to end in muddling and marring what might be good work, with a prospect of profitable return; not that we believe there is much cause for complaint. Still, a word in season may help against errors of judgment, and in this spirit the foregoing remarks are offered.—J.

We in London seldom experience a snowstorm of any intensity, not even in winter, the season of snow. We cannot, therefore, record any very calamitous departure from the normal of April weather, except that for the past week there has been almost a daily slight covering of snow in the mornings, furnishing beautiful fairy-like scenes through certain glades and vistas in the parks and gardens, and owing to the persistent cold winds, the snow lay unmelted wherever the sun did not reach it. But from Banff to Bournemouth snow has fallen heavily, necessitating the street snow-plough in the latter place on the 24th, and severe frosts immediately followed the snowfall. What can man do in face of such abnormal meteorological conditions as these? At a time when the whole earth should be odorous of newly-stirred soil and of the fragrance of buds and blossoms, warm with the western breezes, atune with the songs of nesting birds and busy bees, lovely and fresh from softest April showers, what have we? Hail, gales, snow, sleet, stinging frosts—these are the elements of our late and present weather. What a blow to gardening! gardening as a means of livelihood; gardening as a recreation. Sunny days soon make a difference upon the earth and upon our spirits; yet the iron must have entered deeply into the souls of many of our confères, especially those who pursue horticulture commercially. Sympathy is very poor when one has suffered grievous loss, yet it is all that we have to offer now. Losses cannot be other than enormous; but it is too soon to reckon them yet. The character of the weather over Great Britain is reflected in the following letters:—

In the Dumfries district we have escaped wonderfully, as we have had very little snow, save on the higher lands, and it did not lie on the ground except on the more lofty hills. The frost was unusually severe, however, on April 24 and 25, and a good deal of injury has been done to many plants in some gardens, although it was not so intense as in many parts of Scotland, sixteen and seventeen degrees being the most recorded

that I have heard of close to Dumfries. In some gardens Daffodils were spoiled, and Delphiniums and some other herbaceous plants cut down. This is unprecedented in the same gardens over a long period of years. Early Rhubarb has been destroyed in many gardens also. In my own garden I have suffered very little indeed. Daffodils, although drooping to the ground, have been uninjured, and the young growths of Erenuri, considered tender, did not suffer, nor even *Lilium giganteum*. Flowers of *Anemone apennina*, and of some of the nemorosa varieties, were partly spoiled by frost, and Primroses had their flowers spoiled by the frost, while a good group of *Primula rosea* was bleached. In some places fruit blossom has suffered, but it is fortunately late this season as a whole.—S. ARNOTT, Dumfries, April 27.

No such weather in April, as occurred last week (18th to 25th), in Mid-Herts, has occurred in my experience, though I have known snow and frost in North Yorkshire so heavy and severe in April as to completely destroy all the outdoor blossoms on unprotected trees nearly forty years ago. Happily, this season the outdoor fruit trees in Mid-Herts are very late in blossoming. The first flower on Cherry and Plum trees only expanded on the 18th, those against walls being only about a week earlier, while the Pear blossom had only a flower here and there on the point of expanding, and the flower buds, and even opened flowers, appear no worse for the trying circumstances they have had to encounter. The Currants and Gooseberries in flower do not appear to have suffered, there being a fair amount of protecting foliage, which, combined with the snow, which fell to the depth of six to eight inches on the 23rd, further protected the promising fruit from the nipping influences of the weather. Appearances are not always justified by results, as bush fruits, particularly Gooseberries, are prone to appear normal and promising, and when they should be swelling the berries these drop off most unaccountably in showers. This, probably, is a consequence of imperfect fertilisation, and it is not yet safe to allude to bush fruits as unaffected for the worse by the recent wintery April weather.—G. A.

Since I sent the note on the season's prospects, I am sorry to say that my views have been modified considerably with reference to the prospects of an abundant crop of fruit, not because the trees have not, or would not have been, faithful, but owing to our fickle climate. I am grieved to have to chronicle a very sad tale indeed, for this part of the Cotswolds. For several mornings we have experienced very sharp frost—10deg, 8deg, 9deg, 6deg, 6deg, 7deg, 8deg respectively, with piercing easterly wind, which on the 23rd culminated in a fall of snow. This came from north-east, and froze on the fruit trees as it fell, incasing them in frozen snow and ice from top to bottom. As much as 12deg of frost was registered in this neighbourhood, 8deg being recorded here. The thermometer never rose above freezing point on a north wall the whole of the 24th inst., and the Cherries have been incased in a solid sheet of ice for the past eighteen hours. Although the trusses of flowers are only just showing in the crown of the Strawberries, most of those I examined have been blackened. Gooseberries are in full flower, and must be ruined. The oldest men here cannot remember such weather as we are now experiencing on these hills. We have up to this date had only one warm day, viz., the 16th. As I write snow is falling fast, and the trees are heavily laden with it. Pears, Apples, Peaches, and other fruits must suffer greatly; and what of the poor market men further south and west, whose Cherries and Plums are in flower, not to mention other crops? Truly, private gardeners must sympathise with them.—T. ARNOLD, Cirencester, Gloucestershire.

Yesterday, April 23, we passed through the severest storm we have experienced this winter. Yesterday morning we had 9deg of frost, and throughout the day it was bitterly cold. At 5.30 p.m. snow commenced to fall, and continued for an hour and a half, when it lay to a depth of 2in. This was followed by intense frost, the thermometer falling to 6deg, or 26deg of frost, which is 8deg more than we have had this winter. It is too early yet to say what damage has been done. Plums on walls are fairly well in bloom, and will doubtless have suffered. Fortunately the snow was lying well on bushes, which afforded a certain amount of protection. This morning (24th) opened with brilliant sunshine, but now heavy clouds have come up from the east, and probably we may have more snow.

LATER.—We had another 18deg of frost this morning (25th), which makes a total of 55deg in four nights. I am afraid we have suffered very severely. Plums and Pears are badly ruined, not only the flowers, but unexpanded buds as well. Gooseberries are completely destroyed; in fact, everything in flower, from the hardy Primrose upwards, has suffered terribly. I am sorry for those dependent on fruit crops for a living; their outlook is black indeed.—BRIDGE OF EARN.



Cypripedium Helen II., Westonbirt var.

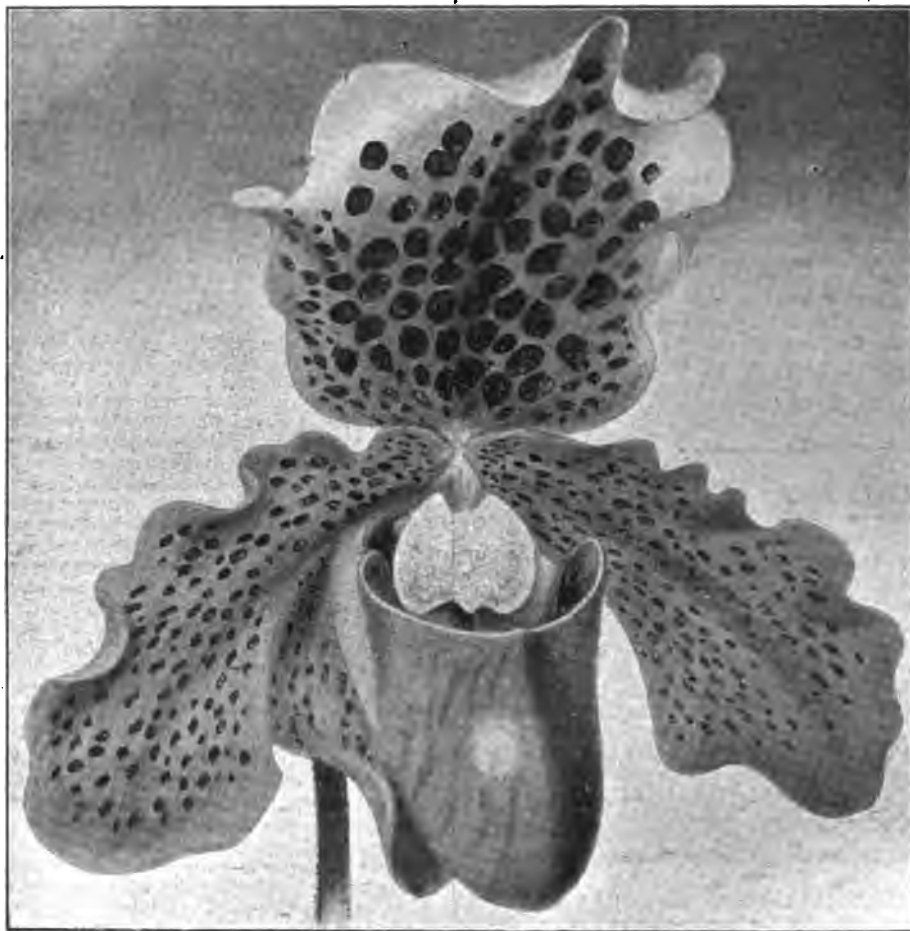
The parentage of this fine bold Cypripedium is given as insigne Harefield Hall var. and bellatulum. It is a large and very attractive flower, of good shape, ground colour bronzy-buff, spotted and suffused with ruddy crimson. It was shown by Major Holford at the R.H.S. meeting on March 31, and won a first class certificate.

The "Spot" Disease—Cause and Remedy.

One of the greatest difficulties that beset the amateur and the gardener who has only a partial knowledge of how orchids are grown, is the "spot" disease. It is first visible to the

temperature at a time when the atmosphere is rather over-charged with moisture, and the plants in a wet state at the base; a high temperature with excessive moisture will also encourage it, and prove quite as disastrous as when produced under cooler conditions, although it can easily be remedied in this case by admitting a little ventilation from the top ventilators throughout the night. Plants undergoing their season of repose, and therefore slightly drier at the roots, are rarely, if ever, affected. Syringing late in the afternoon, when the foliage has not the least chance to dry before sunset, must be avoided. This operation, like watering, ought always to be done with a rising temperature.

Should this disease be present in any collection, the cultural details must be altered, because it is undoubtedly brought about by bad cultivation. First of all note the temperature, and see that the thermometer never falls below the minimum; pay extra attention to watering, neither should the atmosphere be kept so moist as hitherto, and finally, manipulate the ventilators to the best advantage by admitting fresh air on every possible occasion. This will prevent any more damage being done, but the leaves already affected may be removed and be burnt; it may not be necessary, however, to cut away the whole



Cypripedium Helen II., Westonbirt variety.

naked eye in the form of little yellow specks upon the upper surface of the leaf, which eventually turn black and form irregular patches. These gradually increase in size, and often extend to the pseudo-bulbs if the attack is a severe one, but more especially in the case of Dendrobiums than in any other genus. Many imagine that a fungus is the cause, or that it originates from the roots; but experiments and observation do not support these theories. Plants most susceptible to the "spot" disease include Phalenopsees, Habenarias, Dendrobiums, and other orchids whose foliage is of a tender nature, and it often appears at this season, just when the majority are making their growth. Lælias, Cattleyas, and Cypripediums are seldom troubled with it.

The conditions favourable for the "spot" to appear are a low

leaf in every case. So long as the diseased portion is gone, and the above advice put into practice, there is not much possibility of its returning.

Lælia pumila and varieties.

This charming group of orchids deserves to find a home in every collection. The plants occupy little space, thriving best when grown in shallow pans suspended about 2ft from the roof glass at the cool part of the Cattleya house. At this season they usually push forth new roots, when the repotting or top-dressing may be taken in hand. In addition to the one mentioned above there are *L. Dayana* and *L. præstans*, both desirable plants. Various beautiful hybrids have been raised, of which *L.-c. Clive* may be cited as one of the best.—T. ANSTIAS.



Spring Flowers in Thanet.

A recent call at the interesting nursery of Mr. W. C. Bull, near St. Lawrence's station, Ramsgate, convinced me that any flower lover who was visiting one or other of the famous health resorts in Thanet would do ill to lose the opportunity of seeing what this enthusiastic specialist has to show him.

Daffodils, Tulips, and Gladioli are the floral trinity on which Mr. Bull (a science master by profession) concentrates his remarkable energy. From March to the end of May the two first are a varied and most interesting display, while Gladioli reign supreme in August and September. Mr. Bull is not a dealer "first, last, and all the time." He is a genuine flower-lover, and is ever aiming at improving his collection by importing all the best children of other growers, and by incessant cross fertilisation himself.

The present season is late, and a blizzard of great severity was raging when I set out towards Thanet on Bank Holiday. Naturally the flowers are very backward. Amongst the best Narcissi in bloom were the following: Duke of Bedford, one of the very finest of the bicolors; Water Witch, a lovely white chalice, with a very long stem and drooping flowers; Mrs. Walter Ware, a richly-coloured, free-flowering bicolor; Jenny Woodhouse, and J. B. M. Camm, two excellent bicolors; Santa Maria, the deep yellow "Saragossa Daffodil," with its quaintly twisted perianth; Seagull and John Bain, a pair of exquisite Leeds varieties; Gloria Mundi and Blackwell, two fine orange-crowned chalices; and Monarch, an improved Emperor.

The finest Tulip was unquestionably the dwarf species *Fosteriana*, with its huge scarlet flowers. This is a splendid thing, which one does not see often enough. It is marvellously vivid. *T. Kaufmanniana*, a pretty, *Nymphaea*-like flower, was also open. *Pulchella*, a charming species for the rockery, was very pleasing. Of varieties, I was struck with *Van Berchem*, with its beautiful carmine-rose flowers, and the excellent early yellow *La Boule d'Or*.—W. P. W.

The Auricula and Its Culture.

The home of the Auricula is among the alpine flora of the Tyrol and mountainous districts of Central Europe. According to Professor Kerner's "History of the Auricula, 1875," extracts from which were printed in the *Journal of Horticulture*, 1886 (Primula Conference), about the year 1570 the Emperor Maximilian possessed a large garden in Vienna, and in 1573 invited the celebrated Belgian botanist, Clausius, to his Court, who received the honorary title of Court Botanist. It is to this celebrated man that we are indebted for the plants seen to-day, for he it was who successfully cultivated and tamed, as he termed it, both the alpine *Primula Auricula*, which he called *Ursi I.*, and the *Primula pubescens*, *Ursi II.*, or as they were generally termed by old growers, "Bears' Ears," from the shape of the leaves of the plant, the name Auricula signifying the cartilaginous appendage forming the external portion of the organ of hearing.

It can well be imagined from the natural home of the plant, the romantic mountain scenery of the Tyrol, which annually attracts thousands of visitors, how this little plant came to be esteemed by the peasants of the locality, who brought it down from the mountains, and possibly sold portions of it to the local gentry, who developed a passion for gardening, and the Auricula became fashionable. This wilding of the mountains, however, was little like the present-day florists' flower. It appears to have been introduced to England by refugees from the Low Countries, who settled in the neighbourhood of Manchester, and Spitalfields, London, and to whom we are indebted for the art of silk weaving. These refugees brought these little plants with them as mementoes of their old homes and country. The weavers' windows being large and open for the purpose of light, the little plants were potted and cared for by the weaver at his loom, cheering him and his family in their exile.

The late Richard Dean says: "At Middleton, near Manchester, quite a colony of these Flemish refugees formed a settlement, and to this day florists' flowers are largely grown there, and frequent exhibitions held. Thirty and even fewer

years ago these exhibitions were a necessity, as they were the only means by which florists could interchange views as to the best means of cultivating their favourite flowers. They were then as much of a social as a competitive character, and when the task of awarding prizes had been performed, the florists sat down, and over pipe and glass talked for hours about their floral pets. In those days a new variety of known quality of any popular flower, when a sufficient number had been obtained, was 'let out' at one of these meetings, each purchaser paying for and taking home his plants."

THE OLD FLORISTS.

And here we may say just a word for the old public house floral societies and shows. If it had not been for the opportunities afforded to working men by the landlord of these workmen's clubs, as I prefer to call them, many floral beauties would have been lost to us; and I for one say, all honour to the old friends of the old florists for allowing them the opportunity of holding their meetings and shows on their licensed premises. The public house was the club, the place of recreation and debate of the working classes. The guinea and goose clubs, together with the annual flower show, were the principal features of the year, the large club room being a necessity for the meetings. To these old florists who so successfully grew, exhibited, and cross-fertilised these plants are due the excellent modern types of the two classes of Auriculas seen at present-day exhibitions. They instituted certain rules as to form and markings, which, although not so strictly adhered to at the present time, were invaluable as forming a true ideal to work up to. All flowers not conforming to the standard agreed upon were discarded, and so by the survival of the fittest, or those most nearly conforming to the standard, their offspring of to-day are the descendants of an ancient line, until at last has been evolved a most fascinating and beautiful flower.

The Rev. F. D. Horner says of this flower at an exhibition in the Drill Hall, Westminster, 1886: "In a breadth of its brilliant bloom there is the effect as of many eyes turned steadfastly on their admirers; and there are faces in the floral crowd on which one may read many expressions of a life and character super-floral. Like as in a bed of Pansies there are many comical casts of countenance, expressive of astonishment, anxious inquiry, perplexity, and brown study; so here, in an exhibition of the Auricula, as representative of its beauty as can possibly be made, the flowers look all gentleness, candour, honesty, simplicity, and refinement. Glaring faults that impart a low and evil look are all absent here; and hence I am not able to submit to you how impudent and barefaced is the 'pin-eyed' flower, wherein the stigma protruding from the hollow throat is like a tongue thrust out. Neither how loose and vacant is the expression of the inordinately large tube; and how cold and cunning that of the one too small. Nor how the lack of breadth in the eye or 'paste' of the flower is like that in other eyes which cannot look you in the face, and how narrow ground colour betoken indecision and want of thoroughness. 'Edges' have their own expression, too; something like meanness when too narrow, and akin to bounce in over breadth, for excess of edge is often concurrent with excess of size and coarseness, almost inseparable from immensity in the Auricula, is one of its greatest faults." These are the expressions of an old lover and the greatest modern amateur grower of our time of this old-fashioned flower, and nothing I could say so well interprets the feelings of an enthusiast as these, so I hope I may be pardoned for using the extract.

EXHIBITION AND ALPINE AURICULAS.

I will now briefly describe the two sections into which the Auricula falls, the first or true exhibition Auricula being classed as follows:—Green edges, white edges, grey edges, and selfs. This variety has both mealy and clear green foliage, and the flowers all have a ring of white meal or "paste," as it is termed, around the tube of the flower. We learn that they were called "Painted Ladies" by Sir Thos. Moore in his "Flower Garden Displayed," published in 1734, because delicately improved, as the ladies of that day were, with a dusting of white powder. This mealy appearance may be due to the lime salts in the soil resulting from the aerial degradation of the dolomite peaks on which they grow; by the combined action of air, rain-water with its dissolved carbonic acid, and frost, the disintegrated rock is carried down the hillsides by melting snow, and gives the plant a top-dressing of new material into which to insert its new roots around the neck of the plant at the early portion of the year, and which teaches us the value of top-dressing the plants about February with new soil, prior to their blooming period in April and May.

In the second place it may be due to mimicry of the plants, those possessing it being not so likely to be detected among the snow by roaming sheep or goats in search of food, or it may be that it acts as a kind of natural limewash to shield the plant from the bright scorching beams of the sun as it flashes rapidly from point to point behind jutting crags and peaks on to the plants just emerging from their winter's sleep under the snow. Or, as the original colour of the flower of *Primula Auricula*

was yellow, the white and yellow appearance of the flower and plant attracted night-flying moths for fertilisation purposes, whilst the brighter hues of the other alpine Primulas attracted those of the day.

The alpine Auricula is the one that has neither mealy foliage or any meal on the face of the flower, and is the one most used for borders or rock garden work, although both sections are grown for exhibition purposes under glass in cold frames or cool greenhouses to keep the blooms perfectly clean from dust or soot. Both classes are quite hardy, and coddling is the great thing to avoid in their culture. As I have previously stated, the new soil deposited around the neck of the plant in its natural habitat, and the lengthening of the root stalk, indicates the necessity for the annual renewal of soil when the plants are cultivated in pots, and top-dressing in the spring for those cultivated in the open borders.

CULTIVATION.

SOIL.—This should be fibrous, turfy loam inclining to clay rather than sand, the top spit cut thick from an old meadow. Stacked grass face downwards with alternate layers of turves, stable manure, a little soot, crushed oyster shells, sharp sand, and crushed charcoal, sufficient to keep compost open, forms an ideal mixture for their successful growth. The heap of soil should lie for about a twelve month, and cut out as required by a sharp spade, top to bottom, turned over, chopped, and well mixed, but not sifted.

NITRIFICATION IN SOIL.—Only of late years have we learned the beneficial work done by bacteria in the soil. The power of soils to convert the nitrogen of nitrogenous substances into nitric acid is due to nitrifying organisms, isolated by Prof. Percy Frankland in 1890. These organisms cease working at a temperature of 41deg F., begin working at 53deg F., attain their optimum at 99deg, cease at 131deg, and are annihilated at 194deg F., or on drying at a lower temperature. In form they are mere dots, about 7,000,000 living on a square inch. The work is due to two organisms; the first convert ammonia into nitrous acid (HNO_2); the second, nitrous acid into nitric acid (HNO_3). These organisms live and work better on an inorganic base, and this is why oyster shell grit forms a useful adjunct to the soil. It is the harnessing of these bacteria that enables us nowadays to purify sewage so rapidly and effectively on artificial filters. Their work is not new, it is as old as the hills, and but for them the world would be uninhabitable owing to the accumulation of animal and vegetable refuse on its surface. As in the lightning's vivid flash, the frost and snow, we have natural forces carrying on the revivifying work of fertilisation of soils, so in the bacteria we have the minute wonder worker of the under world converting nitrogen from the air above from decaying organic vegetable and animal matters below into food for plants, so that the mineral world feeding is the medium for the vegetable, the vegetable feeding the animal, and the animal back to mother earth, and so the cycle of life is maintained.

POTS AND POTTING.—The pots most suitable for the Auricula are those known as "market" or "long toms." Being deeper than the ordinary pots and without rims, they hold more soil, and occupy less space. Small plants are potted in 3in pots, and larger ones in 4in and 5in. Overpotting is to be avoided. The pots should be well crocked, and the drainage secured by a few Oak leaves or clean moss, over which is placed the coarser fibrous parts of the soil, and the roots of the plant spread out on same, filling in to within $\frac{1}{2}$ in of rim, and pressing all firmly with fingers and potting stick, a firm root-run being essential. The plant stands with neck just above surface of soil when potting is completed. The pots are placed in a close frame for three or four days, when watering may be done thoroughly, and then no more given until pots ring dry. The north side of the garden is the best position during summer, and in autumn the plants are housed either in frames or greenhouse, giving all the air possible.

Re-potting takes place after the blooming season is over in June, and offsets may be taken and placed in light, sandy soil around the sides of the pots. In case any decayed portion of old root stock is found, it must be removed and a little dry lime or charcoal rubbed into the wounded part. A great point is to keep the surface of soil in pots stirred and open; no sourness or waterlogging must take place. Plenty of fresh air is required at all seasons. Keep the plants on the dry side during the winter. Remove all decaying foliage from time to time. Fumigate for green fly, and if the woolly aphid appears around the neck of plant brush off or touch with tobacco dust or methylated spirit. I have little difficulty, as I find the fumigation with XI vaporising material keeps my plants fairly free of all pests.

It is needless to say that in potting all plants cleanliness of pots inside and out, and of crocks and materials, is essential to success. No amateur will become a successful competitor at shows unless scrupulous cleanliness is observed.—FRED. T. PORTERSON (an address delivered in the Borough Hall, Stafford, on April 16).

NOTES & NOTICES

Mr. Joseph Cheal's Trip.

Mr. Joseph Cheal, the well-known nurseryman of Lowfield Heath, Crawley, is a great traveller, and has lately returned from a trip to Morocco. His impressions have been related to a representative of the "Sussex and Surrey Courier," and Mr. Cheal appears to have enjoyed his holiday.

British Gardeners' Association.

A meeting of the London branch will be held at Carr's Restaurant (next to Law Courts) on May 14. A paper on "Public Gardens and Their Construction" will be read by Mr. T. Winter, superintendent Marylebone parks, at 8 p.m. All professional gardeners are invited to attend.

Clibrans' Dahlias.

A very dainty little hand-list of Dahlias, containing the names of most, or all, of the known varieties, arranged alphabetically, has been issued by Messrs. Clibrans, Altrincham, Cheshire. Varieties of all sections are described, and altogether this will prove to be, to Dahlia lovers everywhere, a very useful guide.

Norwich Weather.

A snowstorm of some severity swept over Wroxham, Norfolk, at the end of last week. Notwithstanding that much of it melted as it fell, about six inches covered the ground. It began on Thursday evening (St. George's Day), and continued all night and throughout Friday. A more miserable time could scarcely be imagined for April, and must have injured outside things greatly. Narcissi are completely felled and battered to the earth, and for the year their beauty is gone. The hard frost of Friday night did not do so much injury, as the heavy covering of snow saved many things. The weather is still changeable, but improving.—D. C.

Blairgowrie Fruit Growers and English Markets.

On Saturday, April 18, a meeting of Blairgowrie, Rattray, and district fruit-growers was held at Blairgowrie to consider as to the marketing of Scottish fruit in England. Fully seventy were present, presided over by Provost Smith. Mr. J. T. Connell, Glasgow, gave full explanations as to the possibilities for punnetted fruit in the principal English markets under a fully organised scheme of distribution. Mr. John Strain, jun., secretary of the Blairgowrie and Rattray District Fruit Growers' Association, said his members were quite hearty in support of the scheme. Replying to questions, Mr. Connell said Raspberries for table use should be gathered in the field in the punnets in which they are to be despatched, and should be picked before fully ripe. Ex-Bailie Adamson, in moving thanks to Mr. Connell, said he was convinced the scheme would be a success, and that they would make a name for Blairgowrie Raspberries all over the country.

Imported Vegetables.

Vegetables of foreign growth were, in March, less plentiful than in the corresponding month of the past two years, and were it not for the big increase in the imports of Potatoes our indebtedness to growers beyond the boundaries of the United Kingdom would have shown a substantial reduction. The imports of Potatoes amounted to 606,727 cwt, against 160,647 cwt in March, 1907, and 51,878 cwt in the corresponding month of 1906. Of this quantity 83,425 cwt were received from Germany, 283,692 cwt from France, 1,431 cwt from Channel Islands, and 238,179 cwt from other countries. The value of the Potato imports was £129,675, or an increase of £88,581. The imports of Onions dropped from 703,724 bushels in March, 1907, to 559,325 bushels last month, the value of the latter being £63,919. The imports of Tomatoes were considerably less in March than in the corresponding month of the two previous years, the total having been 86,928 cwt of the value of £69,722. In the imports of unenumerated vegetables there was a material decrease, the value being £37,730, or £11,724 less than in the corresponding month of 1907.

Nurserymen's Old-time Signs.

Many of our readers may not be aware that it was customary in the eighteenth century, and for many years afterwards, for nurserymen and seedsmen to designate their establishments by signs. The more common were "The Acorn," "The Rose," &c. George Ricketts, of Hoxton, adopted "The Hand"; Edward Fuller in the Strand, "The Three Crowns and Naked Boy"; and Francis Westons in the Strand was known by "The Flower de Luce." Rivers at Sawbridgeworth in 1730 named theirs "The Fox."

Newport (Mon) Gardeners' Association.

A meeting was held on April 8, when Mr. D. Powell read a paper on the grouping of plants. Mr. Powell dealt chiefly with miscellaneous grouping. In attempting this art the exhibitor should have the design in his mind, and be able to see it mentally from beginning to finish. The first to aim at should be to get a good specimen plant of *Cocos Weddelliana*, and any good and choice plants should always be placed in the most prominent positions. Colours should be well blended, never placing two shades together. Mr. Powell, who has been a very successful exhibitor, gave some very useful hints. The usual vote of thanks was accorded.—J. W.

Bristol Gardeners' Association.

The tenth annual meeting, held on Thursday, April 23, was of a very enthusiastic character. Mr. J. C. House presided, and called upon Mr. J. Scott, Downside Gardens, who read a very encouraging report of the year's proceedings, followed by the financial statement, which records a balance in hand for the first time in the society's existence. It is largely owing to the energetic services rendered by Mr. Scott that the society is now in such a flourishing condition. Lieut.-Col. Carey-Batten, High Sheriff of Bristol, was re-elected president; Mr. Shelton, Redland Lodge Gardens, and Mr. Shaddick were respectively elected chairman and vice-chairman for the ensuing session. Mr. J. C. House was thanked for so ably and efficiently carrying out the duties of chairman in the past session. Messrs. J. Scott and H. Woodward were re-elected as hon. secretary and treasurer and assistant secretary respectively. There is a bright prospect for the new session. Five new members were elected. Mr. Curtis was awarded first for three cool house orchids; a certificate going to Mr. Shewring, gardener to Mrs. Denham, for *Cypripedium hirsutissimum*.—H. W.

Daffodils at Eaton Hall.

On Wednesday and Thursday, 22nd and 23rd inst., the beautiful gardens at Eaton Hall were thrown open to the public, and a large number of residents in the district and in Chester took advantage of the kindness of the Duke of Westminster, and availed themselves of the opportunity of seeing the display of Daffodils. Unfortunately, both days were extremely cold, and the wintry elements on Thursday prevented a large number of people enjoying the beauty of the gardens. On Wednesday, despite the sharp wind, the steamers carried a large number of people to the Ferry, whilst a great many went by road, and during the day the gardens were visited by over a thousand people. On Thursday the snow in the earlier part of the day accounted for a much smaller number of visitors to the grounds. The Daffodils of numerous varieties have sprung up in wild profusion over the neat and well-kept lawns, and the bright yellow clusters mixed with the lighter *Narcissi* provide a tone of brightness and variety to the lawns which at this period of the year are decorated by few other blooms. The large single blooms standing here and there above the grass, bunched round the foot of trees and scattered beneath the shrubs, present a scene of great beauty, and the large patches of yellow and straggling lines surrounding the trees and shrubs along the walks are shown up brilliantly against the dark foliage, and form a brightening contrast to the dulness of the trees, which have not yet burst into leaf. The flowers are now at the height of their beauty, and, like every other class of outdoor plant this year, are very much later than usual, owing to the coldness of the weather. There are numerous varieties of Daffodil to be seen, but the largest and most beautiful now in bloom are the Sir Watkin, the Emperor, the Empress, and Golden Spur. The later varieties have not yet broken into bloom, and these include one of the best in the poetical.—("Chester Chronicle.")

"Potatoes for Profit."

In sending us his little booklet on this subject, the author, Mr. H. E. McGowan, Willowbridge, South Canterbury, New Zealand, reports that it met with a tremendous demand last year, and he received many congratulatory letters. "How to select seed," "How to plant," and "How to escape the blight," are three of the chapter headings. Mr. McGowan is this year experimenting with 220 varieties of Potatoes in New Zealand, and will publish the results.

Guildford (Surrey) Gardeners' Association.

A meeting of this association, presided over by A. R. Upton, Esq., president, was held on Tuesday, April 21, when Mr. J. Clark, of Bagshot, gave a lecture on "Hardy Trees and Shrubs." The lecture was divided into five sections, embracing woodland or ornamental deciduous trees, evergreen trees, small flowering trees, deciduous flowering shrubs, and evergreen shrubs. Each section was ably dealt with by Mr. Clark, and a large number of new and choice varieties, in addition to many of the commoner kinds, were mentioned. Several questions were answered, and a hearty vote of thanks was accorded. A first class certificate of merit was awarded to Mr. J. G. Nicholls, gardener to F. Baring Gould, Esq., for a magnificent group of *Calla Elliottiana* in 10in pots; also a third class certificate of merit to Mr. A. Walking for a very commendable collection of vegetables.—J. G.

Vicissitudes of Fashion.

One of the daily papers expresses regret at the decadence of the sense of chivalry of a generation back when etiquette demanded that flowers be sent always to a hostess before even the least formal entertainment, and when a *débutante* had better stay at home than go to a ball without a bouquet of flowers. We are in full sympathy with the sentiments expressed by our contemporary, and no doubt our readers will also agree. One cannot but wonder where all the flowers which are produced in such overwhelming profusion by the wholesale growers go to, especially when we consider how little evidence is in sight as to their use. Perhaps the pendulum may swing back again to the conditions that prevailed years ago, and fresh flowers be once more recognised as an indispensable feature of every social affair, large or small. When it does, what a wealth of beauty the flower growers will be able to place at the disposal of their patrons as compared with the productions of the olden time!—"Horticulture."

Nitro-Bacterine.

When a man offers you "£5 for five shillings," one is reminded of the character in the story of Aladdin, who offered "New lamps for old ones." And yet that is the offer which Mr. W. T. Stead, the editor of the "Review of Reviews," is making. He affirms that Mr. W. B. Bottomley, Prof. of Botany at King's College, London, has discovered a method of preparing "pure cultures" of the nitrogen-fixing bacteria in the root-nodules of the Leguminosae, and has demonstrated that his system of soil inoculation with these pure cultures increases the crops of leguminous plants in a marvellous degree. He has accordingly struck a bargain with the Professor to have "gallon packets" of these cultures for three shillings per packet, and he is to sell them to the public at five shillings per packet. The contents of three separate packets are to be dissolved in one gallon of water, preferably rain-water, which has been boiled, and allowed to cool. Then the seed is to be merely moistened with the solution and then planted, as the next step in its miracle-working course which is to give a return of "£5 per five shillings." Mr. Stead sets great store by some remarkable results obtained with this product in the growing of Lucerne at the Glasgow Agricultural College Station. But while that is true as regards the crop of Lucerne, its effects in the growing of any other leguminous crops at that same station have been very disappointing, so that the authorities there are not disposed to consider that this new form of "Nitragin" will do much good for the Scottish agriculturist. It is quite possible that Professor Bottomley may have improved in some respects upon the preparation of "Nitragin." But its unreliability—its giving of excellent results in the one case, and no results whatever in the other—are against it, and he should have traced that unreliability to its source, and got it eliminated before putting his "cultures" on the market.—("N.B. Agriculturist.")

Horticultural Biographies.

Mr. John Leslie.

Mr. Leslie is an Englishman, having first seen the light at Bishop Auckland, Durham, about the middle of the past century. His father was a gardener, and though now retired, is still hale and hearty, enjoying his well-earned rest in Surrey. The subject of these notes may therefore be said to have spent all his life in a horticultural atmosphere.

On leaving school he entered the gardens of Lord Othfield, at Appleby Castle, as an apprentice under the tuition of his father, who was then gardener there. He next gained experience in several other good gardens, finally going as foreman to Crossrigg Hall, the seat of Colonel Rigg, in Westmoreland. In this post he remained two years, when, a vacancy occurring, he was offered, and accepted, the position of head gardener at Crossrigg. Here he continued, satisfactorily performing his many duties, for another four and a half years, when he left to take charge of the fine old gardens at Springkell, Dumfriesshire. For the following ten and a half years Mr. Leslie presided over these handsome gardens with marked ability, and won the warm approbation of his employers by his faithful attention to duty. While at Springkell, Mr. Leslie made the acquaintance of a well-known successful Grape grower of that period, the late Mr. James Dickson, then gardener at Arkleton; and between the two a warm and lasting friendship was established, and many an interesting conversation the two had on the subject of Vine culture.

In 1884 Mr. Leslie was asked to take charge of the gardens at Pitculen House, Perth, by the late Mr. Andrew Coates, who himself was a very enthusiastic gardener. The cult of the Grape being one of the features of Pitculen, Mr. Leslie found ample scope for carrying out his theories relative to the growth of the Vine, and those who have had the privilege of visiting annually and inspecting these fine vineries, with their superb crops of splendid fruit, will have no hesitation in according to Mr. Leslie a place in the front rank of British Grape growers. This decision is further verified by his many successes at the principal shows in Scotland, where the Pitculen Grapes invariably occupied an envious position on the prize list. We might just mention in closing, that Mr. Leslie is a life-long reader of the *Journal*, from whose pages he gathered many useful notes, which he valued very much.—"ALBYN."

Mr. Leslie is leaving Perth shortly for a situation at Oxley Grange, Bushey, Watford, Herts, about seventeen miles from London, and in appreciation of his services to horticulture and arboriculture in the Perth district he was recently made the recipient of several handsome presentations. Dr. Thomson, rector of Perth Academy, presided at the presentation, and said Mr. Leslie had put character and conscience into his work, and his papers at the Natural Science Society displayed knowledge and power of his subject. They were extremely sorry that Mr. Leslie was leaving Perth, but they hoped it would be a happy change for him and his family. Mr. James E. Fenwick, in handing over a purse of sovereigns and a framed photo of many of his gardener friends to Mr. Leslie, said a remarkable unanimity prevailed in the desire to do him honour. He knew that Mr. Leslie occupied a prominent place amongst the gardeners of Scotland, and in the matter of Vine culture they all knew he stood in the inner circle of experts. (Applause.) Mr. Leslie had won more wreaths of laurel for his brow than he could conveniently wear himself, and they all recognised that he was a citizen who had consistently pursued the highest ideals. Lord Provost Gibson, Edinburgh, in enclosing a handsome subscription, wrote in eulogistic terms of Mr. Leslie as a gardener and as a man. Mr. Robert Wallace, K.C., ex-M.P. for Perth, also wrote. In conclusion, Mr. Fenwick said Mr. Leslie had found a real coadjutor in his admirable wife, and he would carry with him their fond hope that for himself, his wife, and family there would be many bright, happy, and prosperous years. Mr. Leslie, in reply, said his sojourn in Perth had been happy, and his lot had fallen in pleasant places. He had always been anxious to do credit to the profession he had adopted, and as a gardener he had aimed at being at the top of the tree. In leaving Perth he would carry with him the memory of numerous true-hearted companions and generous friends.—("Dundee Courier.")

A Well-flowered Aristolochia.

In the Bromeliad-house in the Edinburgh Royal Botanic Garden, a plant of *Aristolochia gigas* Sturtevantii last year bore 125 flowers over a period of thirty-three weeks. The first few opened on April 20, and the last on November 30. Close pruning in and cutting away the dead flowers is said to have been the cause of such continuous flowering.

Alpine Plants and Shrubs.

(Continued from page 334.)

As the number of species and varieties of plants suitable for rockwork are legion, some of the most desirable species in the several genera can only be referred to in conclusion.

Arabis (Rock Cress), an extensive family of hill plants, includes the very common and popular white Rock Cress, *A. alba*; also its double variety, in most cases superseding it for both borders and rockwork, for the latter of which it is well fitted for falling over the ledges and for associating with *Aubrietias* and Rock *Alyssums*.

Arenaria montana is the best of the Sandworts, bearing pure white flowers, and should be planted where its shoots may fall over the face of a rock, giving it any kind of light soil.

Aubrietia (Purple Rock Cress) embraces several species and varieties, all suitable for rockwork, *A. purpurea* being an excellent wall plant.

Campanula (Harebell, Bellflower) includes the charming Gargan's Harebell, *C. garganica*, best seen where its masses of flowers may hang, both it and its white variety being excellent for suspension in a window or conservatory. *C. muralis* (Wall Harebell) is suitable for planting in fissures or crevices of rockwork.

Chieranthus (Wallflower) may be named as suitable for an



Mr. John Leslie.

old wall, or even for new, planted in old mortar, *C. cheiri* being alluded to, and loving a wall better than any garden; also dry stony banks and old ruins.

Corydalis (Fumitory) is well represented by the Yellow Fumitory, *C. lutea*, which grows to perfection on walls, and is well suited for the rougher kind of rockwork, and is one of those well-known plants not so much esteemed as it deserves.

Dianthus (Pink) includes the very choice alpine Pink, *D. alpinus*, which should be placed in an exposed position, and be carefully guarded against drought, especially when recently planted. *D. cæsius* (Cheddar Pink) is one of the neatest and prettiest of the dwarf Pinks, and may be established on walls that are decayed, by placing a little soil in the chinks and sowing the seeds in a cushion of moss. Maiden Pink, *D. deltoides*, thrives on well drained borders or rockwork. The Cheddar Pink is found wild on the rocks at Cheddar in Somersetshire; and the Maiden Pink on Arthur's Seat, Edinburgh. *D. glacialis*, not synonymous with *D. neglectus* (Glacier Pink), with rosy crimson flowers, those of *D. neglectus* being rosy-carmine, is of great beauty, and grows in very sandy loam, either on rockwork or in pots placed on sand.

Draba (Whitlow Grass) comprises minute alpine plants suitable for growing on mossy walls, ruins, or bits of mountain ground with sparse vegetation. *D. aizoides*, found on old walls and rocks in the West of England, is the best known and showiest. *D. brunifolia* forms moss-like hillocks of dense dwarf rosettes.

Dryas species are seen to best advantage spreading over the brows and surfaces of rocks. *D. octopetala* is a British mountain plant with white, Anemone-like flowers.

Erinus alpinus, a native of the Alps and Pyrenees, is delightful on old ruins or walls, easily established by sowing the

seeds in mossy or earthy chinks, and is well suited for rock-work.

Edraianthus pumiliorum is a beautiful rock plant with large, bright bluish-purple flowers; and requires sunny fissures in loam and limestone.

Eritrichium (Fairy Forget-me-not) *nanum*, a gem, excelling the Forget-me-nots in its intensely azure blue small blossoms; but is somewhat difficult to cultivate, its chief enemy being moisture overhead during winter, this being kept off by two pieces, so as to form a ridge over the plant, removing it early in spring.

Erysimum pumilum (Liliputian Wallflower) is a perfect gem, producing large heads of bright lemon, in dense tufts, and very nearly related to the alpine Wallflower, *E. ochroleucum* syn. *Cheiranthus alpinus*. It should be given an exposed spot in very sandy or gritty loam or rockwork.

Gnaphalium leontopodium or *Leontopodium alpinum* (the Edelweiss of the Alps) a little, hoary alpine herb, so well known to alpine tourists, is not difficult to cultivate in sandy soils if not placed too near rank growing plants. In order to keep a good stock of flowering plants, the old ones should be divided annually or young ones be raised from seed.

Iberis (Candytuft) includes *I. correaefolia*, *I. Gibraltarica*, and *I. sempervirens*, fl.-pl., all excellent for rockwork in the full sun.

Linaria (Toadflax) gives *L. alpina* (the Alpine Snapdragon) growing in sandy, gritty, rather moist earth in chinks of rockwork, and the Ivy-leaved Toadflax, *L. cymbalaria*, which drapes many walls very gracefully, the white and variegated



Veronica diosmifolia.
(See "Hard-wooded Plants.")

forms being sometimes met with in possession of old walls and places suitable for their growth.

Lithospermum (Gromwell), a genus of Borageworts, includes the fine *L. prostratum*, a spreading evergreen plant, and should be planted so as to let its prostrate shoots fall down the sunny face of a rocky nook.

Lychnis Lagasce, one of the prettiest of rock plants, resembling a Virgin Stock, well suited for adorning fissures on the exposed faces of rock; and grows in any free, sandy, or gritty soil.

Myosotis rupicola (the perennial alpine Forget-me-not), dwarfest and richest coloured of all Forget-me-nots, and one of the choicest of rock plants with the advantage of moist loam and grit, but cannot endure drought.

Oenothera (Evening Primrose) species, such as *O. macrocarpa* (Missouriensis) and *O. taraxacifolia*, are fine planted in a rich, deep soil, where the trailing stems can droop over ledges of stone.

Phlox amœna, *P. procumbens*, and particularly *P. subulata*, and its vars. *alba*, *atropurpurea*, the *Bride*, and *Vivid*, popularly known as Moss Pinks, are fine for rockwork, deeply seated among the fissures in the enjoyment of coolness and moisture.

Veronica (Speedwell), a very large genus, includes some very handsome species. *V. prostrata* and *V. repens* are admirable rock plants, as also is *V. saxatilis* and *V. spicata*; while *V. rupestris* is one of the handsomest. *V. verbenacea*, a prostrate trailing species, flowers a little later.—G. ABBEY.

(To be concluded.)

Stove and Greenhouse Plants.

Hard-wooded Plants.

The value of these plants for the decoration of the cool greenhouse and conservatory is very considerable, especially in late winter and spring. In gardens at the present time they are unfortunately not nearly so popular as in former years. The reason for this seems to be that the plants take longer to reach the flowering stage from cuttings or seeds, and require rather more attention in their cultivation, suffering much more from neglect than do soft-wooded plants. The flowers in many instances may not furnish such glaring patches of colour as "Geraniums," for instance, but they are just as freely produced, and certainly last much longer on the plants, many of them remaining in bloom from two to three months. At the present time the hard-wooded plants in the conservatory at Kew, popularly known as "No. 4," are, to many, the most interesting feature of the house. Arranged principally in the west wing, they are never shaded, while abundance of light and air can be given them.

The following list will give readers an idea of the number of interesting things in flower, most of the species and varieties being represented by several plants, while of some there are a dozen or more. The *Acacias* number nine species and varieties, all with yellow flowers, varying in the shade of colour; *A. armata*, and vars. *pendula* and *undulata*; also *A. Drummondii*, *fragrans*, *hastulata*, *obliqua*, *pulchella* (and its variety *hispidissima*). The genus *Boronia* is represented by four species. The fragrant dark maroon blooms of *B. megastigma* are past their best; *B. fastigiata* (*polygalæfolia* of gardens), rose-coloured; and *B. heterophylla*, dark rosy-carmine, are masses of flowers; while the fourth and tallest species, *elatior*, is just opening the first blooms, which are a shade lighter than those of *heterophylla*. Several plants of *Eriostemon myoporoides* and *E. affinis* have been flowering for fully three months. Both species have white flowers, tinted with pink, when first opening.

The *Ericas* (Heaths) are not quite so prominent now as in early winter. *E. persoluta alba* is the most popular, and others include *coccinea minor*, *conspicua erecta*, and *E. candidissima*. A very beautiful New Holland plant also is *Chorizema cordatum*, also the variety *flavum*. *Polygala myrtifolia grandiflora* (Dalmasiana) is one of the easiest and quickest growing of all hard-wooded plants, soon making large specimens; the flowers being purple. Two varieties of *Correa speciosa*, namely, *major* and *ventricosa*, also deserve to be mentioned.

A plant few will probably recognise by the name, although given in Nicholson's "Dictionary," is *Audouinia capitata*. In most gardens it is grown as *Diosma capitata*. The crowded terminal heads of flowers are light purple in colour. Then the slender-growing *Aotus gracilima* has made shoots 3ft in length, most of which are nicely clothed with yellow and red flowers.

Only one representative of the Australian Heath, *Epacris*, is now in flower, namely, *E. longiflora superba*, the long slender tubular corolla reddish-crimson, tipped with white. This is a beautiful plant, and a photograph of it is here reproduced. The Australian Mint-tree, *Prostanthera denticulata*, has small violet-purple flowers. No more floriferous or long-lasting plant is to be seen here than the one that is figured on this page—*Veronica diosmifolia*, with palest mauve-white flowers. Its character is well illustrated in the photograph. Other plants worthy of note are: *Helichrysum humile purpureum*, *Pimelia spectabilis*, *Leptospermum seoparium*, white; *Hibbertia perfoliata*, yellow; *Darwinia Hookeriana*; *Grevillea alpestris* and *G. punicea*, red; *Platytheca galioides*, dark purple; *Pentapterygium serpens*, pendant scarlet flowers; and *Rondeletia cordata*, pink. The two last-named are planted out in one of the borders.—FLOWER GARDENER.

Begonia, Mrs. Heal.

This beautiful winter-flowering Begonia was introduced by Messrs. James Veitch and Sons, and is especially worthy of esteem. Amongst Begonias I should think it reigns supreme. Its characteristics are in many ways like those of the well-known Gloire de Lorraine, and it needs precisely the same treatment. It is of very robust habit, and makes itself con-

spicuous by its large dark green foliage, and above all by its wealth of beautiful cerise-coloured flowers, gracefully protruding on long spikes, each carrying from six to ten blooms. For table decorations it proves to be admirably adapted; also for furnishing.

The cuttings should be taken during March and the beginning of April. I find they strike readily if inserted in the bed of the propagating frame in either peat moss or cocoanut fibre. Should preference be given to striking the cuttings in pots, insert them singly in thumbs, using a compost of cocoanut fibre and sand, and then plunge them in the propagating frame. If the former method is preferred, pot the cuttings as soon as they are well rooted into 60's, placing them back in the frame for two or three days to avoid giving them a check. In either case the next move should be into 54's, using a compost consisting of one part pulled peat, one part pulled loam, one part leaf soil, and enough charcoal and sand to keep the whole sweet and porous. The addition of a little dried cow dung and soot will be found beneficial. Should any green fly make its appearance fumigate at once, otherwise it will tend to arrest the growth of the plants; also keep them as near the glass as possible, but take care to keep them well shaded.

As soon as the plants are well established potting should be resumed, this time into 32's and 24's, according to the size of the plants, using the same compost as before, with the addition of a little bonemeal. This potting is often made final, seeing that the above sizes are most serviceable for decorating purposes. When they are thoroughly established in their final pots frequent waterings with diluted farmyard manure water may be given, also an occasional dose of Clay's fertiliser, and clear soot water at intervals. A moist atmospheric temperature of from 60deg to 65deg F. should be maintained throughout their growing season; also take care to keep the plants well shaded. When nearing their flowering stage a drier atmosphere and a slightly lower temperature (55deg to 60deg F.) must be afforded them, as this ensures a longer period of blooming. Under these conditions they thrive admirably.—E. T., Eshton Hall Gardens, Gargrave, via Leeds.

[A photograph of specimen plants, measuring 3ft by 3ft, was sent. The plants are in 7in and 8in pots. Unfortunately the photograph was unsuitable for reproduction.—Ed.]

Market Gardening Notes.

PROTECTING FRUIT BLOSSOM.

This is a sadly neglected precaution. On the one hand, while freely admitting that one half of the bloom buds could well be dispensed with, on the other hand, what if the bulk is frosted or injured? I am pleased this week to see something being done, not only on the walls, but also on the outer boundaries of fruit quarters. The Worthing flakes or hurdles answer admirably, are cheap, and with ordinary care last for years. Protection against wind is good; this also breaking the white frost. Lasting in its effect is the free use of the smother fires on the side of the grounds next the wind. It will pay to start such at the daybreak. This is when the worst mischief arises, followed by the sunshine early. Rick cloths, tarpaulins, &c., have more than once secured me a full crop, while out of reach of this crops have been practically a failure.

TOMATO STOPPING.

This refers to the leaders, as it is well understood that all sub-laterals must be taken out early. Diversity of opinion there is regarding the matter of main-rod stopping, but in my own practice never have I had cause to regret the early taking out of the leader growth. A good example of this I saw recently when looking in at the Clarkson Nurseries, Wisbech. All were stopped at the third truss, before bloom was showing, some at two, some at one, the latter being a vigorous truss, plant stronger, with a free break again for the leader. I know there are good examples of non-stopping, yet even with the best, the later growths and fruit are not equal to the stopped ones. This question of early stopping also admits of a closer planting or thicker pot standing, there being more light afforded under this system. Sun, light, air are each important factors in Tomato growth; and early fruit is also always desirable. My system is to top dress lightly as the plants are stopped. This is beneficial in that there is thus a new incentive to new root growth, which, of course, is worked up on the top foliage and rods.

VIOLAS.

Very disastrous has the whole season been for these in the open quarters. Frame-sheltered plants are right, but they only represent the smaller portion. Those who are fortunate in weathering will meet with a good market. At this date last year the sight was good; a contrast to that of to-day. I could name losses in other lines, but the above is a very sad business for many growers.—STEPHEN CASTLE.

Ferns.

The Newer Nephrolepis.

The exhibit of this particular genus of ferns shown by Messrs. H. B. May and Sons at the R.H.S. Hall, presented some of the most striking examples of fern sports extant. The genus itself is not a large one, and up to a comparatively recent date only three or four varieties belonging to two species, *N. exaltata* and *N. rufescens*, presented attractively decorative features in the shape of cresting or sub-division. The normals in all cases are merely once divided ferns, with fronds which, as they unroll, form two rows of longish falcate sub-divisions springing from a central midrib, and presenting when complete a long sword-like outline, the divisions, of course, being ignored.

A peculiar character is the free formation of travelling stolons which, when layered, produce young plants Strawberry fashion, and it is probably due to the facility for propagation thus afforded that so few sports appeared, bud sports being far



Epacris longiflora superba.
(See "Hard-wooded Plants.")

rarer than spore sports. In any case, whatever the reason may have been, sports, especially in *N. exaltata*, began a few years back to appear, including some very striking congested and dwarf types which originated in Messrs. May's nursery, and possibly as a sport from the furcans variety, originally but erroneously imputed to *N. davallioides*, instead of *N. exaltata*, a splendid crested form, *N. e. Mayi*, appeared, which eclipses in the exuberance of its tasselling any other fern we are acquainted with, the edges of the frond being actually 2in thick, with the intricately intermingled crests borne by the pinnae.

The most beautiful varieties, however, are the plumose or decomposite types, which first became famous in *N. e. Pearsoni*, raised in the United States, in which the pinnae are divided and redidivided, but with a slight tendency to reversion. Presumably from spores of this there arose in succession *N. e. elegantissimum*, *N. e. Whitmanni*, and *N. e. todeoides*, in which this divided character is carried much farther, and on such charmingly regular lines that the piled up, or imbricated side divisions, divided and redidivided, accordingly stand up on each side of a symmetrical channel an inch or more deep, along the midrib of the frond. As these divisions are greatly lengthened, instead of the sword-shaped outline of the normal *N. exaltata* we have a very broad based, triangular, decumbent frond, like a mass of beautiful moss. No one comparing *N. todeoides* or *N. e. Whitmanni* with the undoubted progenitor, a thin fronded, straggly habited, by no means handsome fern, would be inclined to credit the parentage. *N. e. todeoides*, appropriately so christened from a resemblance to the charming antipodean

"filmy fern," *Todea superba*, is the most foliose, but *N. e. Whitmanni* displays its fronds to better advantage, and differs somewhat in the ultimate cutting. A curious freak in *N. canaliculata*, a crested form, was exhibited, in which here and there the midribs projected from the frond tips and ramified into dense bush-like bunches of long silky-looking bristles, really crests or tassels composed of central veins only.—C. T. D.

Aphides.

CURRENT APHIDES.—Four species of aphides occur in the three kinds of Currants, but two are more or less confined to the species and varieties of *Ribes*, namely, the Currant blister aphid (*Rhopalosiphum ribis*), and Black Currant leaf-curl aphid (*Myzus ribis*). *Rhopalosiphum ribis* produces reddish, reddish-brown, or yellow blister-like galls on the surface of the leaves. *Myzus ribis* often causes the leaves to curl up, especially on the top shoots. Thus both species take care to protect themselves by sucking on the underside of the leaves, and causing them to curl downwards and inwards, thus forming hollows protected from sun and rain.

The blisters or semi-galls are chiefly noticed on the upper surface of the leaf, where they are blister-like; below they are concave. The leaves so affected shrivel away, or are seriously crippled, and the fruit is very poor and dry, owing to loss of sap. It often falls off long before the leaves die. "Honeydew" becomes abundant as the aphides increase in size and number, so that the bushes often have a shiny and sticky appearance. The "honeydew" in turn is seized upon by a black fungus (*Capnodium* sp.), and the fruit is anything but tempting in appearance, not to mention its stickiness when handled.

Rhopalosiphum ribis is more often found on the Red Currant, but is also abundant on the Black and the White. *Myzus ribis*, however, is the species especially found on the Black, but it also occurs on the Red and the White, and sometimes on the Gooseberry. The life history of these aphides is very similar. The wingless, viviparous females appear first of all in April, and occur continuously until July or August, and every now and then some of the aphides to which they give rise turn into pupae, rudiments of wings appearing as wing buds. These winged females fly from bush to bush, and there set up fresh areas of infection. These winged generations may occur as early as the middle of May, but usually not until June. In the autumn or late summer, males and oviparous females are formed—the egg-laying female; and after being fertilised, deposits her few, brown, elongated eggs on the last year's growth of a twig. Here the eggs remain all the winter. A number of the winged females leave the bushes in July or August; indeed, of the latter very few remain on the Currant bushes, though some probably always abide and give rise to the oviparous females and males, the former depositing their long brown eggs under the exfoliated rind, attaching them to it by a gummy excretion. For the most part the aphides leave the Currant and Gooseberry bushes during the summer, and in autumn return and deposit the small brown or blackish eggs. While "abroad" the males are apparently developed along with the winged females, the latter returning to the Gooseberry and Currant bushes and founding colonies of the wingless egg-laying form upon the leaves.

PEAR APHIS (*A. pyramali*).—This grass-green species is sometimes found on both the Apple and Pear, but not usually in strong evidence. The Apple aphid is *A. mali*.

PLUM APHIS (*A. pruni*).—The very light green or blue species last year twisted up the growths of low Plum trees in a very remarkable manner, having seized on the young leaves after some growth had been made. These blue gentry are hard to be killed, and so disastrous are they that the trees sometime assume the "silver leaf" disease appearance. This aphid clings hard to the Plum tree, probably never leaves it entirely, as examples are often found in late summer, but are mostly winged.

THE GREEN FLY OF THE PLUM, known popularly as the Hop aphid (*Phorodon humuli*), appears more addicted to the Sloe and Bullace of hedgerows and waste places, and to Damsons and the smaller fruited varieties of Plum, than the blue fly. The eggs are deposited near the tips of the shoots in autumn, and the larvae hatch out in early spring. The winged females are produced later, which take their departure to the Hop or other plants and thus leave the Damson or Plum trees relatively, if not entirely, clear. In autumn winged oviparous females are produced, which, after fertilisation by the male, return to the Plum, Damson, or Sloe, and deposit eggs thereon. This aphid, however, has a hibernating wingless female form, passing the winter in the ground, and crawling up the food-plant in the spring, depositing living young upon the soft growth; but this applies to the Hop and allied plants.—T. R.



The Marguerite Leaf-mite.

I noticed in the *Journal* of recent date someone inquiring for a recipe for destroying the Marguerite maggot. I have tried methylated spirit, one part to 100 parts of soft water, with good effect this season. I had several plants very badly affected, and I tried spraying with several mixtures, but still the pest went on spoiling the plants. I adopted the spraying about five weeks ago, and they are now quite free from any maggot. This is the first time I have used the methylated spirit, and really did it as an experiment. Thinking perhaps you might like to know, this is the reason for my sending this letter to you. I might say I laid the plants on their sides, and I thoroughly sprayed every part three times in the evenings, so that the foliage could dry before the sun could get at them. I enclose a small shoot taken from a plant that was badly affected. [It is perfectly clean.—Ed.]—GEO. GUMBRELL, Rose Mount, Ascot.

Loganberries.

I was much interested in the remarks and observations on Loganberries in "Fruit Notes" on page 338. The distances for planting recommended by different authorities have been very variable, consequently many intending growers are at a loss to know which is the most economical. My experience with the plant, on a heavy soil, which is shallow, and therefore similar to field culture, is that 10ft apart in the rows and 8ft between the rows is a very suitable distance to grow them. The plants are tied to galvanised wires strained between posts. With regard to the marketing of fruit, I found a difficulty in disposing of surplus, after supplying private customers. The jam-boilers' excuse of its being too late in the season to take it in was poor, as he was still accepting other bush fruit. Evidently there was no demand for the jam, and he would not risk having a stock left on hand. Personally, I prefer Raspberry jam, but many who have tried Loganberry like it best; the two mixed make an excellent preserve. Last year was a bad season, as there was much wet, and it is probable much fruit may have been gathered when damp, otherwise I do not see any reason for the jam fermenting, as I know it keeps as well as any other kind. I think, in view of the improvements that are being effected by re-crossing with the Raspberry, such as Laxton's are doing, that it would be unwise to plant too largely, especially as many plants offered for sale are seedlings, and not layered plants.—L. F. D.

Cement Benches.

Apocryphal the article upon and illustration of cement benches which we reprinted from the "American Florist," and which attracted some notice, a correspondent now writes in that paper thus:—"I have noticed an article in your issue of December 14, which has just lately been called to my notice, in regard to concrete benches for greenhouses, saying that plants will thrive on them as well as on boards, with which I heartily agree, having experimented with these benches for the last four years, both as to their growing qualities and construction. Your correspondent says, 'Do not be led into the belief that stationary or permanent constructions are most practical.' With this I do not agree, as I am positive that benches built in one solid piece are cheaper, by so large a margin, that if the question is thoroughly gone into, sectional benches would not be considered. They are much stronger, as the entire structure is all bound together into one solid piece, so that they will withstand any weight to which they may be subjected. They are neater in appearance, as they can be built lighter, and they do not need the expensive reinforcing material necessary in sectional benches. They are cheaper, because they can be built with the cheapest kind of reinforcing material, because they can be built with less material, and because the cement can be handled more quickly; having a large space to work on, it can be smoothed out on a bench as fast as it can be mixed by four or five men; with ten men as much as 700 to 800 square feet can be finished in two or three hours. They are cheaper also, because the cement is handled only once, as it is poured on the place it is to remain, and not first poured into small moulds, then set aside to dry, then taken out and stored away, and then carried to where bench is going to be erected, and then handled again in erecting bench; also because there are no beams of cement necessary to carry a permanent bench which are needed when section are used. For the benefit of

your readers, I am willing to argue on any point your correspondent might bring up by actual figures on time in erecting and mode of construction, as I am firmly convinced that cement will supersede wood in the greenhouse, as it is already doing in all other building operations.—**LOUIS WITTSOLD.**

Progress at the Garden City.

We are holding monthly exhibitions of produce grown on this estate, have lectures, and do all we can to stimulate an interest, here at Letchworth. We have already thirty streets planted with thirty types of street trees. We have put down a demonstration shrubbery of 250 varieties of trees and shrubs suitable for forecourts, and have also nearly a thousand varieties of herbaceous perennials to demonstrate their decorative value. You will find shrubberies growing in the roads, and Rose borders by the side of the paths, and a general interest in garden work, but as most of our tenants have only had a tiny London garden until now you will see the task we have in getting things done satisfactorily.

With a view to instruction in laying-out gardens, we have arranged to have a competition and exhibition of garden designs. As over a thousand new gardens have been made here since we commenced to build, you can realise the importance of making a special effort to bring out the best results.—**F. J. COLE.**

Beware of Spiders.

Gardeners, in the course of their employment, must come into contact with spiders of all sorts and sizes; not only the web-spinners, but also the wanderers. We find them on the earth, on shrubs, and on plants, spreading webs in our houses and sheds, lurking even in the corners of frames. It may be interesting to know how spiders might act if we handled them roughly, unawares or by intention. On the Continent it is well known that several species can inflict virulent bites. In our island all have generally been supposed to be harmless to us. But a correspondent of "Nature Notes" states that he had been told by a very intelligent girl, that she and other girls had been bitten by spiders during the operation of spring cleaning. The spiders were small and black; they occurred in places rather damp; and the bite was sharp, causing the flesh to "puff up," but the swelling did not last long. Then he adds that a friend had recently told him that he had been bitten by a spider. He was passing through a doorway, and presumably had struck or touched a large spider. He felt suddenly a sharp pain in his hand, and a thrill, like an electric shock, went up his arm; looking down, he saw the spider drop. I can myself add a third instance. A lady friend was working in her garden when she felt a tickling sensation in one arm. She put up her hand and rubbed it; this was followed by a sharp prick. Going indoors, she undressed, and found a dying spider which she had evidently squeezed, and which had stung her. The arm became swelled, and was useless for several days. So even a British spider may resent being annoyed or roughly handled.—**C.**

The Failure of Flower Shows.

Re your leaderette, page 230. This is a vital question, surely worth more than passing notice, and no horticultural question of the day is more worthy than this of further attention in the pages of the *Journal of Horticulture*. Some flower show organisations there are to-day which are merely faint reflections of departed glory, so far as public interest in them is concerned, and are just kept alive by a limited number of enthusiasts who, to their credit be it said, make considerable sacrifice to avert the fate to which, under existing conditions, they appear foredoomed. Now, such enthusiasm is very good in its way; it is, in fact, the breath of life to bodies horticultural, but enthusiasm which fails to attract public interest imparts no stamina, and in some cases does but little more than prolong the agony of impending dissolution. Apparently, the time has come when the public, as represented in many large local centres, wants more than a flower show, pure and simple, and will not support it unless it gets more; and it is no use for enthusiasts to declaim that an excellent show in itself should be sufficient, when the disagreeable fact remains that it is not. The public, of course, will not say exactly what it does want, even if it knows. Those who cater for it have to find that out. A little experimenting in that direction can alone show up the ventures which bring about the desired object. But experimenting is costly, inasmuch as to make money, money must be spent, and consequently risked, and this leads to some pursuing the beaten track in the hopeless hope that the public, prone to flit in other directions, will return to its first love. Here and there where the show powers that be have courageously grappled with this serious matter, a very satisfying change has come, and their tottering institutions have been refixed on a

sound commercial basis, which, one may take it, is the only satisfactory basis for anything of the kind. If those who have happily accomplished this could be induced to publish the ways and means adopted, with all the valuable experience pertaining to it, for the benefit of others, it would, as remarked, surely be worth all the space that could be devoted to it in these pages, even if half of the *Journal* was for a few weeks monopolized by the discussion. A broad view of this subject will scarcely fail to show its importance to the great gardening world at large.—**K.**

Large Trees.

In reference to the Cedar at Brierley Hall, near Bradford, there is a much larger one in our garden. The largest one here is 90ft high, has a circumference about 2ft from the ground of 20ft, and 6ft high the circumference is 18ft. It is between 200 and 300 years of age. Within a few yards of this tree is the finest Copper Beech I have seen, and there are some of the finest specimens of Chestnuts in these grounds that there are in the country. Elms of over 100ft high and 21ft in circumference are very plentiful here. I might add that the Cedar looks like standing another 200 years.—**A. E. USHER,** Ranston, Blandford, Hants.

Sheffield Horticultural Society.

Mr. Chas. Cook takes exception in your issue of April 16 to an article which appeared on April 2 *re* the above; but Mr. Cook is not accurate in his statements. I also was a member of the society almost from the commencement, and an exhibitor, and have a complete set of the schedules, from which I find that it was formed in 1900, and so was in existence seven years. I find Mr. Cook's name first appears in the schedule as a member in 1904, so he could not have been a member six or seven years. The balance sheets show good credit on three occasions, without any appeal to members. As a member of the Chrysanthemum Society, I am glad Mr. Cook has "a much better opinion of his committee." He has not always had such an opinion, and whether it is apathy or neglect, some of us, though both members and exhibitors, do not know even yet what the year's arrangements are. We sometimes hear of its fixtures after they have taken place.—**B. A. W.**

Book Canvassers.

I am pleased to see a little variety creeping into the "Young Gardeners' Domain." It livens up the practical pen-work. Relative to the experience of "Sussex" with a book-cannasser, page 365, I am reminded of an episode, pertinent to this matter, which occurred in my bothy days. Place, a fine estate and commodious garden on the Cotswolds; time, a hot summer's day, when we were called upon to assist in the trial of a new manual fire engine. It was great fun for us, as we stood four on each side working the levers—one side up, t'other side down; our side up, t'other side down, whilst "t'gaffer" so manipulated the jet as to bring a heavy shower down on a quarter of main-crop Peas, which, by the way, had a bad attack of mildew after it. Just as our merry labours were at their height, came strolling in a "literary gent," seeking his prey with a bulky paper parcel of bait under his arm. He got us, of course, altogether, and could afford to bide his time. However, "t'gaffer" spotted him, in two senses, for he not only did not love these book-cannassers, but, it was said, positively hated them, owing to having been "done" by one of the tribe in his bothy days. The sequel was, our visitor got in the way, for somehow he stood in just the one place where "t'gaffer" eventually directed the hose, explainable, perhaps, by a twinkle in his eye; and the more that "literary gent" tried to get out of it, the more he seemed to get into it. When at last he took to his heels that jet pursued him like an avenging angel. Result, he was not seen again in that garden.—**AN OLD BOY.**

Twelve months ago I had a visit from one of these smooth-tongued canvassers. He entered into his marvellous offers of books, of which he had only a limited number for disposal, and which would not be obtainable elsewhere. After numerous refusals of his offer, and having at the same time one of the best works on gardening, I showed it to him. Alas, he insisted on finding me a purchaser for my books, at a fixed price, and to put me into communication with the would-be purchaser. I agreed to this. Judge of my surprise, however, when a big parcel of books was brought into the bothy in my name; but never from that day to this have I heard of a purchaser of my books. I might say that I did not bother to look at the new books, but returned them to where they came from. Threatening letters followed, but of these I took no notice, and soon the matter dropped.—**F. H. JAMES,** journeyman, Shrewsbury.

Hothouse Construction.*

(Concluded from page 351.)

Trellising for Vines should be not less than 16in from the glass, and the wires should be about 11in apart. Some gardeners advocate the trellis being much farther from the glass, even as far as 27in, but excepting in very large houses this is not very practicable. It is usual to trellis vineries over the whole roof and also on the back wall, although this latter is not of very much use, owing to the shade of the Vines in front. Trellis for Peach trees is generally carried about half way up the front roof, and also the whole height of the back wall, so that two sets of trees can be grown. Where the width of the house will permit of it (say 14ft or 15ft), a drum-shaped or curved front trellis is sometimes considered an improvement. In that case the trees are planted in front of the trellis and trained over the top of it, instead of being tied up underneath it as on a roof trellis. There being sufficient space in front to allow a man to pass along, the gardener can more easily attend to the trees when trained in this way. It also allows more light to reach the back wall trees. In Melon and Cucumber houses trellis is required above the bed, extending 4ft or 5ft up the roof from the eaves. Trellising for creepers is often desired in plant houses, and it may consist of light wires stretched along the roof, or of three wires running up each rafter, which interferes less with the light.

Every house should have a rain-water cistern, the water from the eaves gutters being led into it. These cisterns should be of Welsh slate slabs, or built and cemented, and each should have a standing waste pipe, which can be pulled out for emptying and cleaning. A gravitation water supply should also be led into each cistern, in order to provide against dry weather. A good plan, when there is a scarcity of gravitation water, is to first lead all the rain water into the individual cisterns, and to have an overflow from these into an underground reservoir or tank. A pump driven by hand or power to pump the water from this reservoir to a high level cistern, say in the roof of the potting shed, should be installed, and thence a system of pipes should be led through the houses, with a nose cock at each cistern. By adopting such an arrangement all the cisterns are automatically kept full in wet weather, and no pumping is necessary excepting in dry weather.

The ventilation of hothouses is an important matter. In plant houses the side ventilation, except in special cases, should be worked by hand quadrants, so that some of the sashes may be opened and others closed as desired; but in fruit houses all the front or side sashes should open simultaneously by means of suitable gearing. The top ventilation of all houses, whether for plants or fruit, should be by means of a continuous sash along the ridge, with opening gearing of a good substantial pattern. In wide cool houses it may be necessary to have a sash on either side of the ridge, but in other houses one sash is sufficient. In orchard houses ample ventilation is necessary in order to approximate to outside conditions when required.

It is usual to make the lengths of houses in multiples of 5ft, so that there are main posts and rafters at these intervals. There are usually three astragals between each pair of rafters, giving four panes of glass in the width of each space. The glass will thus be about 14in wide. When the roof astragals are longer than about 6ft they should be supported in the centre by a tee or angle iron bar fixed to the rafters and astragals. In the construction of roofs care should be taken that there is no thrust upon the side framework, otherwise sooner or later it will be pushed outwards. All roofs should be so constructed that they rest solidly on the top of the walls or side frames without any thrust. To accomplish this the roof must be securely bound together with tie rods or some other device. As an improvement on tie rods, iron brackets have been introduced; these bind the rafters together at the top, and also bind the bottom of the rafters to the side framework. In this construction the whole superstructure is bound securely together, and rests solidly on the walls. Similar brackets binding the top of lean-to rafters to the back wall make a very secure and substantial job, the brackets having "snugs" batted into the wall. In warm houses the rafters and astragals should have small gutter grooves close beneath the glass to carry off condensed moisture, and at the eaves these grooves should terminate in such a way that the water will run to the outside of the house, and not trickle over the woodwork inside; and there should be no inside gutters on the lintel, as they soon gather slimy growth and get choked up.

The kind of timber of which the superstructure of hothouses should be made is a most important matter. Baltic "Redwood," from St. Petersburg, has been very generally used for many years, but only the very best quality was ever good

enough for the purpose. For twenty years or more the quality of this timber has been gradually deteriorating, till now it can only be used after a great deal of it is sacrificed by the removal of sapwood from the battens. As this timber is also dearer than it used to be, this waste of wood makes the houses much more costly than formerly.

As the sills of the hothouses usually decay first, it is a good plan to make these of some more durable material than Redwood, such as Jarrah wood or Teak wood, and in stoves and other warm houses the posts and lintels of the framework should also be of one of these hard woods. Where the cost can be afforded, there is no doubt whatever that it is well worth the money to use Teak wood or Jarrah wood throughout. Owing to the difficulty of getting a supply of first-class Redwood, we have for some years been importing quantities of Larch from the borders of Siberia, near the Ural Mountains. This we have to buy in the round, and cut the logs up to suit our own work. This timber we find to be much more suitable for our purpose than Redwood. It is better grown than home-grown Larch, and it does not warp as home-grown Larch does. All timber should be carefully stacked in covered sheds with sticks between the battens to give air space; and timber like Redwood, Larch, &c., should lie at least twelve months in these seasoning sheds before being used. I doubt if this is done as much as it ought to be; but, though it means that considerable capital is locked up in timber stocks, the firms who do this are able to guarantee a better quality of timber than those who depend upon buying their supplies from merchants just as they require them.

In framing up hothouse work it should be so arranged that there will be no flat surfaces for water to lie upon. All surfaces should be carefully bevelled to run off the moisture. The joints should also be so arranged that it will be next to impossible for water to get into them and start rot, and no wood-work except the doors should be near the ground or floor level. Another important matter is that all surfaces should be coated with paint before the parts are put together.

Glass for hothouses is usually clear 21oz sheet glass, though 15oz is sometimes used; but the latter is too thin. The glass should, if possible, be of British manufacture.

Rolled plate glass, ½in thick, or 21oz obscured glass, is generally used for the roofs of ferneries and palm houses. It is also used for the roofs of conservatories where it would be difficult or impossible to manipulate blinds. The glass is usually glazed with putty and firmly tacked in, but it is now the general and most approved practice to have no "fore" putty on the outside of the roof; this is found to be more satisfactory in every way, and is much neater. The fore putty in the old style of glazing used to crack away from the wood, allowing moisture to lodge behind it and rot the wood. Roof glass is very often cut at the laps with a curve. This induces the water to run down the centre of the pane, away from the wood; and the condensed moisture inside also runs to the centre, and being thus increased in volume, gets more freely through to the outside. Systems of glazing without putty are expensive and complicated, and the joints are too open for hothouses. Recently I saw a greenhouse with glazing of this sort in which snow drifts were sometimes formed in winter.

All hothouse woodwork should be kept well painted with good white lead or other good quality of paint. Genuine white lead paint is the best paint at a moderate price, but see that it is best genuine white lead. There are other satisfactory paints, such as "Ripolin," "Lubrose," &c., but they are all dearer than white lead, and it is a matter of opinion as to whether they are worth the extra cost. White lead paint costs about 5s. per gallon, "Lubrose" about 13s. 5d. per gallon, and "Ripolin" enamel about 20s. per gallon, all made up.

Shading or blinds are required on most plant houses. Shading with one or other of the mixtures sold for this purpose or with a home-made preparation put on at the beginning of summer and washed off before winter, is the simplest plan. Blinds are more satisfactory, but they are more costly. They may be fitted either on the outside or on the inside of the house. Inside blinds made of cloth are principally used in houses of the conservatory type. For garden work the blinds are usually outside, and on the roof only. These outside blinds may be of cloth of various kinds, or of wood laths. The latter are considered preferable, and though they are more expensive they are more durable. Outside blinds, whether of cloth or wood laths, are frequently raised above the roof, resting on iron rods fixed at a height of 6in or so above the roof. The object of this arrangement is to allow a current of air to pass between the blinds and the glass and so keep the latter cool. When the blinds lie flat on the roof they must be stopped at the bottom of the roof ventilator, but when raised above it they can be carried over the ventilator to the ridge, and they can also project over the eaves at the bottom, and so give more effective shade.

Hothouses are sometimes advertised at absurdly low prices, but in hothouse building, as in most other things, good sound work has to be paid for, and it is the cheapest work in the end.

* Paper read at the monthly meeting of the Scottish Horticultural Association, on December 3, 1907, by Mr. Alex. Mackenzie, of Messrs. Mackenzie and Moncur, Limited, Edinburgh.

Carnations.

Raising the Winter-flowering from Seed.

The perpetual-flowering class of Carnations is more than worth the trouble it costs to get a real good supply of blooms for cutting all through the winter and spring months. Of course, the blooms individually are not large. By a careful selection of blooms saved for seed there is, however, to be obtained some good sized flowers. Usually the flowers are very sweet, but some are much more scented than others, and all are beautiful and pleasant. Plants vary a good deal in habit, some forming quite compact plants, which, when carrying several blooms, can be used as vase plants for the room; others have graceful sprays, splendid for cutting purposes. Our plan is to sow the seed in the middle or end of January, using clean 6in pots filled with a sandy loam and leaf mould in equal parts,

stick is useful to loosen the soil between the plants occasionally, which also helps growth.

Attention is given to airing and watering, always using rain or soft water. The lights are taken clean off on all favourable occasions, and by the middle of May they will be well hardened off, ready for planting out, as better plants result than if potted up. They are carefully lifted out of the boxes and planted on a border, which should be previously prepared by digging in some old spent hotbed or Mushroom bed, 15in apart each way. During the summer months the Dutch hoe is often run between the plants, and the border is well watered when dry. The plants will need pinching two or three times, and a neat stake to keep them in good shape. Advantage is taken of the first heavy rain in September to take the plants up, potting them carefully into 5in or 6in pots, according to the size of the ball, which is generally fairly large. The loam used is again sandy. Mix with it some Wood's Carnation manure, and work it well amongst the roots, making it fairly firm. A stake is put



A Market-grower's Carnations. A House of "Queen Louise."

the latter being spread thinly on a hard, level floor, and the roller passed over it to kill all grubs, or if only a little is needed, a rammer or other similar tool is used. The pots are carefully drained with crocks, covering them well with some of the rough material taken out of the loam, then filled to within an inch of the top with the soil, and made moderately firm, afterwards watering them through a fine rose, and left two hours or so to drain before sowing the seed, which should be done rather thinly, covering with some of the mixture passed through a fine sieve.

The pots are put into a temperature of 65deg, and covered with a piece of glass, and in a few days the seedlings appear, and the glass is removed. In a day or two the pots are put on a warm greenhouse shelf, and when the plants need water the pots are immersed in a pail of chilled rain water, and when large enough the plants are pricked off into boxes filled with a similar mixture as that in the pots, only a little rougher, 3in apart each way. Place them back again to get a good start, and by the end of March or early April they are removed to a cold frame. It is essential to keep them growing, and if green fly should appear it ought at once to be removed by blowing tobacco powder over, or in any other good way. A pointed

stick is useful to loosen the soil between the plants occasionally, which also helps growth.

It is surprising how soon the plants pull round if put into a cool house or given side air, and an occasional syringe; afterwards they are put into the warm greenhouse, where they flower freely if fed at intervals with a little of Clay's fertiliser. They well repay for the trouble taken by giving, as before said, a grand supply of bloom all through the winter and spring months. —H. PRENTICE, Hartpury House, Gloucester.

The view of the above Carnation house comes to us from Mr. W. H. Page, Tangley Nurseries, Hampton, Middlesex, in whose nursery the house is. Mr. Page has lately come more prominently forward as a first-class cultivator of the winter-flowering, or perpetual-flowering, section of Carnations. The variety shown is Queen Louise, an old white favourite, and still largely grown by him. It is being superseded, however, by White Lawson and White Enchantress. The plant has a healthy, vigorous growth, and is very free flowering. The dark, velvety-crimson Harlowarden is grown on either side of it, and is best seen on the right hand of the photograph.

Hollies for Hedges.

The common Holly, *Ilex Aquifolium*, with its many varieties, is well known and extensively cultivated as one of the most handsome and useful of low trees. It succeeds under a diversity of circumstances, and endures the blast of the sea where its direct force is broken up, as also that of the moorland, provided the plants are hardily reared. This is a matter that may be dilated upon at some future time, for though the Holly is a British plant, there is a great difference in the affair known as acclimation, the plant adapting itself to circumstances in a very remarkable way when the start is from the seed, and continued right away under an identity of conditions.

The Holly forms one of the handsomest and most enduring of hedges. It is slow growing, taking eight or ten years from the seed sowing to make a fence 4ft high. Possibly in very bleak situations it may be advisable to sow the seed instead of planting plants 9in to 12in high, that have been reared in sheltered quarters, and grown relatively close, not having been transplanted more than once. Anyway, the closely reared, drawn, and indifferently-rooted Holly is a very difficult plant to succeed with in a fully-exposed situation, for though the plants for a hedge are placed somewhat closely together in line, they are subjected to side winds that cut through, or between them, and are exposed to the heat and drought of summer much more than when grown in the rearing quarters, where they shelter each other. There are, of course, Hollies and Hollies. Some are reared hardily from the start, never crowded, but are given every advantage, being practically as "hard as nails." Yet these advantages are all thrown away if the plants are exposed to the air for a long time after arrival, or to cutting winds and hot sun.

PREPARATION OF THE GROUND AND PLANTING.—This should take precedence of all other operations. Draining in cases where there are no ditches may be necessary, for the Holly is not a bog plant, nor will it thrive in a water-logged soil. It will succeed in relatively poor ground and somewhat dry staple, but does best when given a free rooting medium. In all cases nothing pays better than trenching to a depth of 2ft and about 3ft wide, incorporating a quantity of manure at the same time with the stubborn under spit. This manure should not be rank, but be half-rotted. Where the second spit is very heavy, it is not wise to bring too much of it to the surface, but loosen the bottom and incorporate the manure with the soil above it. In any case, rank manure must not be employed so as to come in contact with the roots at planting. If the trenching and enriching can be done some months before planting the Hollies, so much the better, as this gives time for the loosely-upturned soil to weather. In good loamy soils, manuring may not be necessary. The vigour and rapidity of growth assumed by a hedge when the soil has been well worked and manured, not merely broken up, is an object lesson.

By trenching, a slight mound is raised, which materially assists in keeping the plants from excessive moisture, and aids in the cleaning and general after management. The hedge-and-ditch system is only advisable where superfluous moisture is present in the soil, and in wet soil such ditch may be indispensable. It should be 5ft wide at top, and 1ft at bottom, and 3ft deep, this being a minimum where the open ditch is intended as an outlet for drains. The soil removed in forming the ditch is thrown upon the side where the hedge is to be planted, thus forming a ridge. Under ordinary circumstances a ditch is no advantage, but the reverse, and is expensive.

PLANTING.—The best time to plant the Holly is the beginning of May, and it may be carried out up to June, according to earliness and lateness of location. In selecting the plants, a great amount of care is necessary. The size of the plants is of more importance than the age, and those with stems about as thick as the little finger are to be preferred to those that have lank and small stems, though the plants may be taller. They should be bushy, evidence that the roots are also fibrous, and that transplanting has been frequent. The plants may be 9in to 12in for the smallest size, and 12in to 18in for the general. Larger plants are not desirable. Height is no criterion of value. In the case of well furnished plants they require planting farther apart than is advisable in planting to form a hedge. In the case of screens, there is no objection to Hollies, except the expense.

To form a good hedge, Holly should be placed a foot apart in one row, and a second row 6in from it should also have the plants a foot apart, but be alternated, so as to come as it were between the others. The plants should be carefully lifted, and not be bundled in any but very small bundles, so that if they have to be laid-in, the plants in the centre of each bundle may not get dust-dry. They should never be exposed to the searching winds of spring. The plants should in all cases be

kept as short a time as possible out of the ground, which will depend to some degree on distance. Prompt planting is quite as important as that of despatch and rapid transit.

Hollies for hedges usually have the roots all inclining outwards in one direction, due to the bedding in nurseries; therefore, in planting a line they may be stretched along the centre of the prepared ground. Spread out the roots to their full extent. The plants should not be placed deeper than they stood whilst in the nursery border, which will be readily seen by the mark on the stems. A small quantity of fine soil should be placed next the roots, the remainder of the soil being added afterwards, that placed about the roots being trodden firmly, and the other made moderately firm, but not hard.

In the case of a double line of plants, the line is stretched 3in from the centre of the prepared ground on each side, and the plants placed in the trenches in opposite-vacancy order. The surface being of fine ameliorated earth, the soil moisture will be much better conserved than when it is rough, and in the latter case a mulching of short manure over the roots is an advantage.

The hedge will need protecting against intruding cattle, horses and sheep; and the cheapest fence is the usual railing of Fir-poles with Larch posts; the fence not exceeding 3ft 6in high, of three rails; and to exclude sheep, wire-netting must be affixed from the ground to the middle rail. Every weed that grows on the prepared ground in which the Hollies are planted must be cleared out, never neglecting this, as every weed robs the soil of nourishment.

The Hollies, unlike Whitethorn, do not require shortening at planting. They must be allowed to grow into each other, the top not on any account shortened, but year after year be allowed to grow up, until the hedge begins to close well, when the tops may be made even by cutting down any of the plants that get the start of the rest. The face, too, may be cut a little in, so as to check the outward growth of any inclined that way; and both sides of the Holly may be brought into a more even face. As the plants thicken, so must the face inside and out be clipped even, and the more it is cut in, the better and thicker the surface becomes. The Holly "feathers" or branches naturally down to the ground, but if weeds are allowed to choke the bottom part, the leaves will fall and the stems become bare. The Holly does not bear cutting down while young.—A. S. A.

Climbers.

Vitis-Thomsoni.

Now that hardy vines are becoming popular for clothing pillars and pergolas, this variety should not be omitted, although it is so unlike a "Vine" in appearance, much more resembling *Ampelopsis hederacea* in its formation. Especially valuable is this variety for the richness of its colours in Spring, when growth commences, and again in the autumn when it assumes the seasonal change.

Vitis flexuosa Wilsoni.

I lately saw this vine growing at Aldenham, where it is becoming established upon a tall Larch pole, along with several others of the newer forms, and where an interesting object lesson will be available, as it is intended to connect the poles by chains, forming abundant space for the progress of the vines. The variety in question has quite small, glossy, green, shining leaves, of especially quick growth, and a natural twining habit, which is quite useful in pillar plants.—S. H.

Roses for Low Walls,

Fronting many residences are low walls, which can and are often made attractive by being covered with vines or plants. Roses are especially well adapted for the purpose where the wall supports a bank of earth, as it so often does. The plants should be set in the soil, and their growth permitted to run along the top of the wall and droop over its face. The *Wichuraiana* hybrids are particularly well adapted for this purpose, as the many examples of them met with so used fully testify. They are all close trailing kinds to a great extent, and because of this often hang so close to a wall as to appear almost like a running vine. Of the older known sorts *Pink Roamer*, *Gardenia*, *Jersey Beauty*, *Evergreen Gem* and *South Orange Perfection* are often met with; and now *Dorothy Perkins* is finding its place in the same way. When planted, unless from pots, Roses of all sorts should be given a close pruning. All may not require it to make them live, but it ends in bringing about better plants of those that grow; and even those from pots, if in a dormant state, may be well pruned to their advantage. When in leaf such hard pruning would be a serious check to the plants.—("Florists' Exchange.")

Ghent Quinquennial Exhibition.

"Greater than ever." "Better than ever." "More successful than ever," is the universal verdict of visitors regarding the present Ghent (Belgium) "Quinquennial." This occasion celebrates the centenary of the Botanical and Horticultural Society of Ghent. There is, as usual, a great gathering of visitors from various countries of Europe, who all seem deeply interested in the various features of the show. All arrangements were completed by the evening of last Thursday, and on Friday morning the various sections of jurors, counting up in all to some 240 members, commenced their labours previous to the opening of the show to the public on Saturday. This arrangement is a highly commendable one, as it does away with the usual bustle and worry on a show morning, when exhibitors have to be bundled out of the way to make place for the judges.

The exhibition is divided into four great sections. There is the elegant suite of rooms, usually a ball room, in which the orchids, floral decorations, and a few other choice subjects are located. There is next the "Palais des Palmes," the large, beautifully lighted hall of the Casino. Here are arranged in most effective and telling manner the palms, ferns, foliage plants, and a few flowering subjects, such as Anthuriums. Then there is the great annexe or "Palais des Azaleas," a new building specially erected for this centenary show, with an expanse of fully two acres, and probably the most effective and suitable building that ever located a floral exhibition. At one end of this building there is a dioramic painting representing an English rural scene, in which the show itself imperceptibly merges, and leaves on the mind of the spectator a sense of infinite distance. This "palais" presents a marvellous blaze of colour; flat in the centre, and raised up with taller subjects on each side. An intermixture of green would much relieve the eye of the visitor, and add elegance to the wondrous display, but one cannot have everything, not even at Ghent.

The great object of the exhibition is, of course, to exemplify the horticultural products of Belgium, and thus many popular features of our English shows are wanting. There is none of the wondrous groups of miscellaneous plants seen at Shrewsbury; no decorated dessert tables; no championship collections of Grapes; no marvellous displays of vegetables; no bouquet or floral design competitions, nor any of the hundred and one subjects that arouse the interest of exhibitors at British shows. To give a detailed report of the exhibits and exhibitors, with lists of awards, would be next to impossible, and the names of individuals and firms who have received honours would be of comparatively little interest to the great majority of our readers. In this report we therefore content ourselves with a general survey of the exhibition, and for the information of our readers we describe the leading features of its marvellous extent and beauty. We shall first notice the

English Exhibits.

which are certainly not numerous, but in one case at least of the greatest importance. In the orchid section, the greatest feature of the show is the wondrous Westonbirt collection, with which Major Holford, C.I.E., C.V.O., most worthily maintains the reputation of English horticulture. The group occupies one end of the ball room suite of rooms, and is arranged with great elegance and effectiveness by the grower, Mr. H. G. Alexander. The orchids are beautifully relieved with an intermixture of elegant palms. As the exhibit was raised off, it was difficult to note names of the cream of the exhibit, but striking examples were *Cattleya Mendeli* Westonbirt variety, *C. Mendeli* May Queen, *Brassia-cattleya Digbyano-Mendeli*, *Laelio-cattleya Golden Glory*. The *Odontoglossums crispum* are, however, the great feature of the exhibit, mostly white or of light colours, with splendid arching spikes of great beauty. Besides the orchids, there is also a magnificent exhibit of Westonbirt *Hippeastrums* (*Amaryllis*), which are by far the best and most extensive display of these stately flowers in the show. Much credit is due to Mr. Chapman, the gardener at Westonbirt, and to Mr. Alexander for the effective arrangement of the exhibits, for the care with which all must have been packed to travel such a distance in perfect condition, as well as for the great horticultural skill displayed. Work of art awarded for orchids, and large gold medal for *Hippeastrums*.

Other English exhibitors were Messrs. Ker, Liverpool, who made splendid displays of their well-known collection of *Hippeastrums*, to whom first premiums were awarded. Messrs. Hugh Low and Co., Enfield, made a small but effective exhibit of perpetual-flowering Carnations in the best varieties, such as Winsor, Aristocrat, Victory (splendid scarlet), Mikado, White Perfection, &c. Messrs. Low also contribute some cut speci-

mens of choice orchids, noticeable being *Cattleya Mendeli*, fine form; *Cymbidium Wiganianum*, *Cattleya intermedia alba*.

Mr. H. C. Englemann, nurseryman, Saffron Walden, also showed Carnations, beautiful blooms of the best sorts, effectively arranged. Mr. Englemann was awarded first prize for his collection of Carnations, and an award for a new variety. A small exhibit of choice orchids is made by Messrs. Charlesworth and Co., Bradford, chiefly *Odontoglossums crispum* in spotted varieties. We noted Ebor and Prince George of Wales as being of much merit.

The General Collections of Orchids

are of great beauty and extent. It would be difficult to imagine a more suitable environment in which to display such dainty subjects, the elegant surroundings of the ball room responding well to the beauty of the flowers. A wondrous display of *Odontoglossum crispum*, mostly seedling spotted varieties, was made by Mr. Ch. Vulysteke, Loochristy. These were shown in a glass case, and were said to be of such a money value that figures can hardly express. They were certainly beautiful. Another splendid display was made by M. Lambeau, of Brussels, who was awarded a gold medal. All are fine. We noted *Cattleya Mendeli Triomphe de Gand*, also *Miltonia splendissima*. Near this was a grand exhibit from Maurice Verdonck, Gentbrugge. Elegance was accorded by the profuse display of beautiful *Oncidiums*.

Gold medals were awarded to M. Theodore Pamock, Gand, for a beautiful group of *Cattleya Lawrenceana* and for a splendid exhibit of mixed orchids. A magnificent collection of *Cattleyas* by Emile Proet, Gand, was awarded a work of art; and to M. Vineke Dujardin, Bruges, also for a choice collection. From M. Ch. Dietrich, Auderghem, also came a very handsome exhibit, and there were meritorious groups from a number of other firms.

Foliage Plants, Ferns, &c.

The large hall of the Casino presents a most impressive aspect, filled with specimen palms, ferns, and other fine-foliaged plants, mostly noble specimens, and with scarcely an exception in perfect condition. The plants, generally speaking, have none of the wearied, worn appearance that foliage plants present at many shows, not having done duty for years. Here they are in their very prime, with scarce a spot on a leaf. The leading position in exhibits of mixed foliage plants is occupied by M. Louis Van Houtte, Ghent, who was awarded a gold medal with the felicitations of the jurors. The group presented a most imposing aspect, made up of splendidly grown specimens. The most notable are *Alpinia Sanderi*, *Leea amabilis superba*, *Pandanus Sanderi*, *Diffenbachia Jenmani*, *Spathiphyllum picturatum*, *Heliconia illustris rubrum*, *Dracena Sanderiana* (superb specimen), *Phyllotenus Lindenii* magnifica, and *Rudgea macrocephala*. A few flowering specimens are mixed with this group, such as *Anthurium Andreanum giganteum*, *Cymbidium Lowianum*, and *Cattleya Lawrenceana*. M. Louis Van Houtte had other important exhibits of specimen plants, and various firms made fine displays of smaller ones. The class for *Dracenas* is very fine, a gold medal being awarded to Pennick et Fils, Gentbrugge, with an excellent assortment. A specimen *Victoria* was grand, also Cantrelli (very bright), Père Charon, and Souvenir de Professor Ed. Pynsart. M. Draps Dom, of Brussels, also exhibits beautiful *Dracenas*. Crotons are also shown in fine condition, bushy healthy plants in good colour for the season. M. L. Delaraye, Gand, is a chief exhibitor, Comte Hugo, Martha Caharza, Lady Zetland, Bertha Fournier specially beautiful. *Caladiums* are very fine large plants in splendid colour, gold medal being awarded to Louis Van Houtte. C. Mrs. Laing is a most perfect specimen. *Diffenbachias* from M. Draps Dom, Brussels, and others, are very handsome.

Anthuriums make a great display, and attract much attention, De Smet, Van Houtte, and others being prominent exhibitors, and receive gold medals. *A. Scherzerianum atropurpureum* is very fine. A noble exhibit of seedling hybrid *Anthuriums* came from the Ecole Royal de Horticulture of Florence. These are very varied in colour, with blooms of immense size. Le Comte Kerchove de Denterghen is also a prominent exhibitor of *Anthuriums*, and receives a gold medal.

Palms would have made an exhibition of themselves, and have a great effect, arranged as a bank round the walls of this "palais." For a collection of twenty-five the first prize, with felicitations of the jury, is awarded to M. Louis Van Houtte. M. Spae, Vander Menlen, Gand; M. Jules de Cock, M. De

Smet, and many other growers are prominent exhibitors. Amongst all the palms, perhaps nothing is so beautiful as *Phoenix Roebelinii*. A number of new palms is also shown. Tree and other ferns are much in evidence, and showed great merit in cultivation. *Marantas* are beautifully presented by M. Drape Dom; and M. De Smet receives an award for a beautiful collection of *Bromeliaceae*.

New Plants.

For twelve new plants not in commerce, Messrs. Sander, of Bruges, gain premier position with interesting subjects, the more prominent being *Croton Fred Sander*, a showy variety with large yellow centre to green leaves; *Bromellia tricolor*, *Periskia Godseffiana*, *Nephrolepis gracillima*, *Philodendron Ilsemani*, and *Ficus australis variegata*. (Gold medal.)

M. Drape Dom contributes a new variegated *Dracena* named *tricolor*. *Tulipa Fosteriana* from Bokhara is very brilliant in colour. *Rhodo-azalea insignis* is also very pretty; and *Pteris Childsi* elegant. Many seedling *Azaleas* are shown, some very attractive, but how far they are distinctive it is difficult to say. Many other new or rare subjects are scattered over the exhibition, but it is impossible to note them all.

Floral Decorations.

These are fairly numerous, and are very effectively shown in the orchid room, where the surroundings are highly suitable. With most of the floral exhibits a very high watermark is reached. They are very showy, but in many cases elegance is sacrificed to bold effects. In a dinner table competition, first place was accorded to M. Van den Hede, Gand, for a very effective exhibit all in pale *Cattleyas*, and arranged with simplicity and taste. An elegant table is also shown by Messrs. Van Houtte, Bogeerts, Gand, in which *Odontoglossums* are largely used. A very beautiful group of designs and vases is made by M. Debrie, of Paris, a fire screen design in which *Clematises* are used being very pleasing. A gold medal, with felicitations, was awarded. Award was made to M. Ch. Mees, of Brussels, for a salon decorated very elegantly with orchids. Only one bouquet is to be seen, composed of *Cattleyas* and *Od. crispums*, which, though quite elegant, would hardly take a first place at Shrewsbury.

Palais des Azaleas.

In this handsome and specially erected annexe all the hardier subjects of the show are located, and the effect is very pleasing, the illusion of great distance being very complete. A group of *Rhododendrons* at each side, merge almost imperceptibly with the painted scene already mentioned. The centre of the annexe is almost wholly filled with *Azalea indica* in all its varied hues of colour, and great variety of plants, from the tiny subjects in 4in pots up to handsome specimens trained as pyramids and ball plants. There are so many classes for *Azaleas*, and many exhibitors, that to give anything like details is almost impossible. The names of De Smet (Gand), Sander (Bruges), D'Hæne (Gentbrugge), Haerens, Somerberg, Louis Van Houtte, Vervaeke, Ledeborg, Pynaert van Geert (Gand), are prominent, and the plants are nearly all perfectly bloomed and models in shape. The varieties are infinite; so numerous, indeed, as to be almost beyond detail. The beautiful double white variety *Vervaekeana alba* is worth special mention. Amongst bright coloured sorts nothing appears better than *Apollo*; and pinks of all varying shades are innumerable. Amongst noticeable features is an exhibit, mostly seedlings, of perfectly bloomed little plants in 4in pots, which must be very useful for many decorative purposes.

Azalea mollis varieties are also much in evidence, most of them very handsome. Several exhibits of *Azalea sinensis* hybrids of the Anthony Koster type are shown with good effect. On each side of the *Azalea* beds are great banks of *Rhododendrons*, in many sizes of plants and great profusion of varieties. A number of choice groups of *Pink Pearl* and its newer form *White Pearl*, are included. A variety somewhat like *Pink Pearl*, but a little deeper in colour, named *W. T. Thistleton Dyer*, is very attractive. In the centre of this building are a number of other exhibits than *Azaleas*, prominent being beds of prime *Cinerarias* and other flowers by Messrs. Vilmorin, of Paris. A new break in *Cinerarias* is *Eclaire*, of a brick red, of novel aspect, that may lead to a more varied type. Messrs. Krelage and Son, Haarlem, have a bed planted with *Darwin Tulips*, which, however, seem to have been forced too much. An interesting exhibit is a bed of *Chrysanthemum Gustav Henry*, about 12in high, with one nice bloom about 6in in diameter on each plant. Beds of *Hydrangeas* are nice, but too formal. Near the top of the annexe, arranged with imposing effect, are *Acacias*, and what are usually termed *New Holland plants*. For *Acacias*, De Smet takes premier place, with felicitations. The plants are great specimens, beautifully bloomed—such sorts as *A. verticillata*, *Riceana*, *longifolia*, being grand. Near these is a group of *Lilacs* of great merit from F. L. de Messemacker, Brussels. *Marie le Graye* seems still about the best white, though *Floreat*

Stepman is very fine. *Louis Späth* and *rosea grandiflora* are also excellent. *Clivias* are well shown in this building. Orange trees loaded with fruit, and trained in various forms, are effective. A group of *Dracena Bruanti* and *Souvenir de François Buysse*, with fine gold variegation seems highly valuable as decorative plants. A group of *Araucarias* from M. Hartmann, Gand, is equally handsome.

An interesting feature of the show, and arranged in a special compartment added to the annexe, is the *Façade de Frascati*, in which is reproduced most of the features of the first exhibition of the society in 1808. Specimens of nearly all the plants then shown are now on view, though, except for curiosity, they cannot be called an attraction, but the past and present of the show is very amply and ably demonstrated.

Outside the annexe, in the open air, are some fine collections of shrubs, amongst which *Sweet Bays* occupy a foremost place. Huge pyramid plants are in the most robust health, and add much to the stately appearance of the gardens. Beds of effective *Coniferae* are planted out, and *Hollies*, *Ivies*, &c., are also to be seen. Amongst the outdoor subjects the *Cordylines*, mostly forms of *indivisa*, take a leading place, and give a most graceful aspect to the borders on which they are arranged. Amongst them are some beautiful forms, especially the variegated. A variety named *Prince Albert* is especially graceful.

On Saturday and Sunday there were crowds of visitors, the town being crowded with people from many countries. The usual functions have been carried out on a liberal scale. The judges' luncheon on Friday, the reception by the Burgomaster in the Hotel de Ville, and the reception by the Association of Ghent Nurserymen on Sunday morning, were each important. The latter was an enjoyable function, and the great banquet in the Theatre Royal provided by the council of the society was a huge success. There were about 400 present, and the appearance of the beautiful hall when the large company took their seats was most impressive. The toast list was rather a long one, but a number of impressive and eloquent speeches were made. The president very heartily invited those that were present at this, the Centenary celebration, to be present again at the next Centenary.—T. M. E.

Societies.

Royal Horticultural, April 28th.

The meeting on Tuesday was of average merit. The exhibition of the National Auricula and Primula Society was held in conjunction. The day was very wet.

A lecture was given in the afternoon by Mr. E. White on the "Profession of Landscape Gardening." Mr. Harry J. Veitch was in the chair. In the course of his remarks the lecturer said how difficult it is to define the mission of a landscape gardener, whose conceptions are not confined to garden or park enclosures, but are stimulated by an appreciation of landscape scenery, and are anxious to bestow its beauties upon districts where they are non-existent; in fact, to make all Nature a garden. The present rate of disappearance of natural landscape by the rush for country dwellings is great, and to the landscape gardener devolves the work of preservation and use of natural features of beauty. He referred to the Town Planning Bill now before Parliament, and the greater demand for landscape gardeners indicated thereby. Landscape gardening embodied a wide range of subjects, and a University training, where possible, was indispensable. In Germany the subject is an important one in all public and horticultural schools, chiefly that of Potsdam. In France, the central institution is the Ecole Nationale d'Horticulture in Versailles. It is also taught in Austria. The United States affords the model precedent, for here the subject of landscape gardening is considered a very serious one, and the subject is found in the curriculum of most of the leading universities, especially that of Harvard, whose course includes the principles of landscape gardening, elementary botany, experimental physics, physiography, elementary geology, principles of design in architecture, sculpture, &c. The lack of similar facilities in England is a matter for comment, and should demand the attention of educational authorities here.

There were thirty-seven new Fellows elected at the meeting, including Lady Grey, Captain Cuthbert, D.S.O., Captain A. H. Thorburn, Mrs. F. L. Joicey.

Fruit and Vegetable Committee.

Present: Mr. George Bunyard (in the chair); with Messrs. Jos. Cheal, Wm. J. Jefferies, W. Bates, H. Markham, Alex. Dean, Edwin Beckett, R. Lye, H. Parr, A. R. Allan, J. Willard, John Lyne, Charles Foster, G. Reynolds, J. Jaques, J. McIndoe,

Owen Thomas, Geo. Wythes, W. Poupart, A. H. Pearson, J. Davis, and James Vert.

Messrs. James Veitch and Sons, Ltd., sent a collection of Lettuces "grown under the French system"; that is, on a warm bed or rich bed of soil, under cloches or bell-glasses. So much as £600 per acre is said to be taken under the French system; but what is the cost? The Lettuces were both Cos and Cabbage varieties, the latter being the Early Frame and Passion. The Cos varieties were Early Green Forcing and Early Market. (Silver Banksian medal.)

A comparatively large selection (sixty dishes) of excellent, clean, well-preserved and highly coloured Apples came from Messrs. James Veitch and Sons, Ltd., Chelsea, S.W. There were two dishes of Pears, Catillac and Directeur Alphonse, the latter a large, pyriform, white-fleshed variety, good as a pyramid tree, and not well enough known. All the leading varieties of Apples were on view. (Silver Knightian medal.)

Excellent samples of forced Seakale were contributed by Mr. W. Cook, gardener to Sir Edmund Loder, Bart., Leonardslee, for which a cultural commendation was awarded. From the gardens of the Rt. Hon. Lord Hillingdon, Uxbridge, came magnificent Royal Sovereign Strawberries, which won a silver Knightian medal.

Orchid Committee.

Present: Mr. J. Gurney Fowler (in the chair), with Messrs. James O'Brien, Harry J. Veitch, H. Little, W. Boxall, G. F. Moore, Richd. G. Thwaites, John Cypher, J. Foster Alcock, Walter Cobb, W. P. Bound, Arthur Dye, W. H. White, H. A. Tracy, Gurney Wilson, J. Wilson Potter, C. J. Lucas and W. Bolton.

Messrs. Cypher, of Cheltenham, had *Miltonia vexillaria*, *M. Bluniana*, *Laelio-cattleya Dominianum magnificum*, *Ada aurantiaca*, and *Brasso-cattleya intermedia alba*. (Silver Banksian medal.)

Messrs. Heath and Son, Cheltenham, sent *Cymbidium Lowianum*, *Cattleya Schröderæ*, *Cypripedium concolor*, &c. (Silver Banksian medal.)

A group of *Oncidium Marshallianum* from the treasurer of the society, Mr. Fowler, was very fine, one plant having five immense spreading inflorescences, with scores of flowers, and which was awarded a cultural commendation. (Silver Flora medal.)

Mr. John Robson, Altrincham, had *Odontoglossum crispum* *Mona* and *O. Lambeauianum*, both very meritorious.

Messrs. Hugh Low and Co. had a nice group of well-flowered *Dendrobium barbatulum* and a splendid *Cattleya Mendelii* named *Gen. Botha*, of great size and general excellence. (Silver Banksian medal.)

Messrs. Armstrong and Brown, Tunbridge Wells, had *Cypripedium Maudiae*, *C. bellatulum*, *Laelia majalis*, and several good *Odontoglossums*. (Silver Banksian medal.)

H. Little, Esq., The Barons, East Twickenham, had quite one of the best groups, the plants being well bloomed. There were *Cattleya Schilleriana superba*, *C. Schröderæ Bella*, *L.-c. Wellsiana*, *L.-c. Highburyensis*, *Laelia purpurata rosea*, *C. Mozart splendens*. (Silver Flora medal.)

Narcissus and Tulip Committee.

Present: Mr. Henry B. May (in the chair); with Miss Willmott, Miss F. W. Currey, Messrs. W. Poupart, Chas. T. Digby, John Pope, Joseph Jacob, E. A. Bowles, H. A. Denison, Arthur R. Goodwin, Walter T. Ware, R. W. Wallace, Alex. M. Wilson, P. Rudolph Barr, P. D. Williams, Chas. Dawson, W. A. Milner, Jan de Graaff, G. W. Leak, W. F. M. Copeland, J. T. Bennett-Poë, J. D. Pearson, H. B. Young, and Charles H. Curtis.

Messrs. R. and G. Cuthbert, Southgate, N., sent a table of Tulips, the finest being *Clara Butt*, *Orange King*, *Mrs. Farncombe Sanders*, *Camée*, *Europe*, and *Gesneriana lutea*. (Silver Banksian medal.)

Messrs. Wallace and Co., Colchester, also had Tulips, among which were *Inglecombe Pink*, *Van Poortvliet*, *Glow*, and *Jak Van Poortvliet*. They also had *Narcissi*, including *Orange Cup*, *Albatross*, *Cresset*, *Horace*, and *Dante*. (Silver Banksian medal.)

A collection of *Daffodil* blooms was arranged by Messrs. Bull and Sons, Chelsea. Messrs. Pope, of King's Norton, Birmingham, also sent a display. Amongst these were the large *Daff. King's Norton*, also *Firebrand*, *Mme. de Graaff*, *Will Scarlett*, and *Gloria Mundi*. Besides these they had a table of seedling *Narcissi*, one or two of which were distinct and good. (Silver Flora medal.)

Messrs. Cartwright and Goodwin, Kidderminster, contributed *Firebrand*, *Elvira* (*trydamus*), *Water Nymph*, *Scarlet-eye*, *King Alfred*, *Evangeline*, and *Torch*. (Silver-gilt Banksian medal.)

Mr. Alex. M. Wilson, East Keal Manor, Spilsby, was represented by a selection of seedling *Narcissi* and named sorts. None of these were outstanding, but *Cuckoo*, *Oriflamme*, and *Southern Star* were very attractive.

Messrs. Barr and Sons, King Street, Covent Garden, London, had the most extensive display of *Daffodils*, staging *Blazing*

Star, a new, flat-crowned yellow, of very attractive appearance; *Radiant*, an *Englehearti*; *Fandango*, a lovely pure white; *Apricot*, salmon crown; *Furnace*, red crown and pale sulphury segments; *Torchlight*, *Cherry-ripe*, *Homespun*, *Fair Maiden*, and *Salmonetta*. The firm obtained the highest award given on Tuesday, namely, a silver-gilt Flora medal.

A small collection of the best known kinds came from Messrs. Veitch. Messrs. Bath, of Wisbech, also had a beautiful table length of *Narcissi*, being strong in poeticus varieties. (Silver-gilt Banksian medal.)

Floral Committee.

Present: Mr. W. Marshall (in the chair); with Messrs. Charles E. Shea, C. R. Fielder, Jas. Douglas, W. A. Biney, John Greening, T. W. Turner, G. Reuthe, John Jennings, J. W. Barr, Walter T. Ware, Chas. Dixon, Arthur Turner, Chas. E. Pearson, Wm. Cuthbertson, J. T. Bennett-Poë, Herbert J. Cutbush, E. H. Jenkins, Wm. J. James, Chas. T. Druery, R. C. Reginald Nevill, R. C. Notcutt, and James Hudson.

The Floral Committee gave one first class certificate and two awards of merit, but the *Narcissus* and Fruit Committees made no awards. The *Narcissus* Committee have been phenomenally sparing in their awards this season.

Messrs. Carter and Co., High Holborn, arranged a large group of *Cinerarias*, both the *stellata* and *grandiflora* types being well represented. The latter were remarkably fine, both in the colours and size of the individual flowers. The whole group presented a fine appearance. (Silver Flora medal.)

From Messrs. R. and G. Cuthbert, Southgate, came a large group of flowering shrubs. The ground work was composed chiefly of *Azaleas*, while the "dot" plants were standard *Lilacs*, *Wistarias*, and *Prunus*. The background of *Palms* formed an appropriate setting. Some of the best *Azaleas* were *Mrs. A. E. Endiz*, *Pallas*, *Isabella Van Houtte*, and *Dr. Leon Vignes*; while the brightest was *J. C. Van Tol*.

Mr. M. Pritchard, Christchurch, Hants, had a pretty display of dwarf rock and alpine plants arranged naturally. The boxes were quite a blaze of colour. Notable was a collection of double *Primroses*, which included *Pompadour*, *Evelyn Arkwright*, and *alba plena*. *Aubrietias* in variety were excellent; while *Saxifragas* in variety were much in evidence. *Hardy Cyclamen*, too, were in fine form. The large plants of *Muscotidium nobile* were remarkably well done.

Spring flowers also came from Messrs. G. Bunyard and Co., Maidstone. The plants for the most part were displayed in pans and baskets. The *Primroses* made a bright display, as did also the *Aubrietias*. The double flowering *Anabis* was conspicuous, as were also pans of *Saxifragas*, while a basket of *Bellis Monstrose* attracted much attention, the flowers gigantic and pure in colour.

Messrs. J. Peed and Son, West Norwood, had a large exhibit of rock and alpine plants, which included some good examples of *Saxifragas* and *Sedums*. *Primulas*, *Auriculas*, and *Anemones* were also grouped. The same firm staged a very fine collection of named *Gloxinias*, which included a number of selfs and spotted forms. The plants were well grown, and the flowers extra large.

Messrs. H. B. May and Sons, Upper Edmonton, occupied a large table with a varied collection of plants. The back was formed with *palms* and well-flowered plants of *Rose Hiawatha* and groups of herbaceous *Calceolarias*. A striking clump of *Clematises*, *Roses* in pots, and *Statice*, the whole bedded with choice ferns.

A beautiful table of *Carnations* came from Mr. C. F. Waters, Deanland Nursery, Balcombe, the flowers large and bright. The best were *Princess of Wales*, *Robert Craig*, *Mikado*, *Marmion*, *Elliott's Queen*, and *White Perfection*.

Messrs. Carter Page and Co., London Wall, were represented by a collection of *Pansies* and *Violas*. The former were a very fine strain, while the latter included *Maggie Mott*, *Mrs. Chichester*, *Marchioness*, *General Baden Powell*, *Pembroke*, *Miss Airdrie*, *Jas. Pilling*, and *J. B. Riding*.

A collection of *Narcissi*, *Tulips*, and *Lily of the Valley* came from Mr. Robert Sydenham, Tenby Street, Birmingham. The flowers were splendidly developed, in moss fibre without drainage.

A bright table of flowering plants came from Messrs. W. Cutbush and Son, Highgate. A number of *Azalea indica* in pots ranging from small sixties to half specimen plants were in full flower, as were also *Erica Cavendishi*, *E. perspicua nana*, *E. candidissima*, and *E. coccinea minor*. *Boronias*, *Stapelias*, and *Lilacs* were in good form.

Messrs. Geo. Jackman and Son, Woking, contributed boxes of *Primulas* and other flowering plants, also some decorative *Acers*, which made a capital background.

The Guildford Hardy Plant Nursery, Guildford, arranged a table of hardy plants, which included some good specimens of *Pulmonaria saccharata*, *Aubrietias* in variety, *Anemone fulgens græca*, *Androsace coronopifolia*, and some capital *Irises*.

Hardy flowers arranged naturally came from the Misses Kipping, Hutton, Essex. The Primroses, Phlox, Doronicums, Violas, and Daisies constituted the chief features.

A charming group of forced shrubs came from Mr. L. R. Russell, Richmond. The plants were arranged in a semi-circle lightly with appropriate palms and foliage plants. The standard Lilacs were especially good, as were also the *Azalea mollis* and some well-flowered decorative Clematises. The same firm staged a large collection of Dracenas, chiefly of a decorative size, the plants well developed and of good colour.

Messrs. T. S. Ware, Ltd., Feltham, arranged a novel exhibit, which was composed of beds of Aubrietias arranged in separate varieties, the intervening spaces being occupied with other hardy flowers. The Aubrietias were Prichard's Al, Crimson King, Bridesmaid, Dr. Mules, and græca; *Primula Sieboldi* varieties were very good, the range in colours being very varied.

The Misses Hopkins, Mere Gardens, Shepperton-on-Thames, had a pleasing display of hardy flowers, Primroses, Daisies, Anemones, and Auriculas being most prominent.

Messrs. Paul and Son, Cheshunt, were represented by a varied display, which included Joseph Hill, a beautiful hybrid tea, which varies very much in colour; a dwarf Polyantha Rose, Annie Muller, which has larger flowers than Baby Dorothy, and Madame Philippe Rivoire. *Cytisus Firefly* was in capital form, also flowering plants of *Philadelphus Mere de Glace*.

A group of climbing Roses came from Messrs. F. Cant and Co., Colchester. Some of the specimens were 8ft high, the whole in splendid form. The chief varieties were *Crimson Rambler*, *Leuchstern*, *Hiawatha*, *Lady Gay*, *Tausendschön*, a large pink variety; *Minnehaha*, and *François Poisson*.

A group of Lilacs in pots was staged by Messrs. J. Cheal and Sons, Crawley, edged with flowering shoots of *Ribes* in variety, *Berberis Darwini*, and *Erica Lusitanica*.

A grand group of Roses came from Messrs. W. Paul and Son, Waltham Cross. The greater part of the exhibit was formed with tall climbers, while the front was composed of the newer hybrid teas. The former section included some fine plants of *Cora*, a beautiful pink; *Kathleen*, a single, very free flowering; *Tausendschön*, and *Grace Thomson*. In the hybrid teas were to be seen *Lyon Rose*, *Albatross*, a grand new sort, creamy white, of excellent form, and *Margaret*.

Hardy plants were extensively staged by Mr. G. Reuthe, Keston. *Rhododendrons* and *Camellias* made an interesting group, as did *Primulas*, *Auriculas*, *Fritillarias*, and other hardy plants.

Rock and alpine plants were well staged by Mr. J. R. Box, West Wickham. *Saxifragas*, *Aubrietias*, *Sedums*, and *Geum montanum* were conspicuous, the whole arrangement most pleasing.

A large plant of *Echium callithyroum* came from Mrs. Bridget Talbot, Berkhamsted (gardener, Mr. E. Pincock). The plant was carrying two spikes of blue flowers, and attracted much attention.

Carnations in splendid form came from Mr. W. H. Page, Tangley Nurseries, Hampton. The vases were bedded in a groundwork of Maidenhair fern, which enhanced their beauty. The flowers were very large, a few of the best being *Mrs. T. W. Lawson*, *Britannia*, *Rose-pink Enchantress*, *Lady Bountiful*, and *White Perfection*.

Mr. G. Mount, Canterbury, again made a fine display of Roses. The pyramids were formed with fine blooms of *Capt. Hayward*, *Frau Karl Druschki*, and *Madame Abel Chatenay*, while *Caroline Testout*, *Catherine Mermet*, *Souvenir de Pierre Notting*, *Richmond*, and *Mildred Grant* were in excellent condition.

Pansies and Violas came from Messrs. Dobbie and Co., Rothesay. The former were large, typical flowers, while the latter included *Admiral of the Blues*, *Mrs. H. Pearce*, *Mary Burnie*, *Jas. Lyon*, and *General Baden Powell*. An excellent strain of well-grown Polyanthus was also shown.

A distinctive exhibit was that from Messrs. H. Low and Co., Bush Hill Park, the most distinctive features of which were some well-flowered plants of the Australian bottle brush plant, *Metrosideros floribunda*, with standard plants of *Gemista elegans*; groups of *Roses* *Baby Dorothy* and *Baby Rambler*, the latter very fine. Some well-flowered plants of *Boronia* were delightfully perfumed.

Messrs. W. Cutbush and Son, Highgate, had a fine collection of Carnations, which included *Robert Craig*, *Enchantress*, *Britannia*, and *Fiancée*. The rest of the exhibit was formed with groups of *Spirea Peach Blossom*, a new *Coleus*, *Cordelia*, a very bright leaved variety; also *Rhododendron Smithi aurea*.

Hardy flowers arranged naturally came from Messrs. G. and A. Clark, Dover. Perhaps the most striking features were *Clematis montana rubens*, *Primulas* in variety, *Iris*es, and double *Arabis*.

A fine display of plants came from Messrs. Jas. Veitch and Sons, Ltd., Chelsea. The blue *Hydrangeas* attracted considerable notice; *Azalea indica Vultstekeana* was in excellent flower; *Oleanderias* of the stellata type, and *Antique Rose* were of delicate shades; also a grand group of *Schizanthus grandiflorus*

hybrids. The plants were dwarf and in the pink of condition. A very fine strain.

Messrs. Cannell and Sons, Swanley, again made a remarkable display of zonal Pelargoniums. The flowers were large and the colours very bright, a few of the best being *Ascot*, *Carmania*, *Frogmore*, *Cervic*, *Goodwood*, and *Hibernian*.

From Messrs. W. Bull and Sons, Chelsea, came a group of ornamental plants, which were freely arranged. The chief subjects were *Aralias* in variety, *Eugenia myriophylla*, *Dracenas*, and *Caladiums*.

A table of cut *Rhododendrons* came from Mr. F. G. Godman, Horsham (gardener, Mr. Moody). The exhibit included enormous heads of *R. Aucklandi* hybrida, a cross between *Aucklandi* and *Fortunei*. *Cantus dependens* was attractive with its deep rose flowers; also excellent trusses of *Posoqueria longiflora*.

FLORAL COMMITTEE.—Medal awards: Silver-gilt Floras to Messrs. Cutbush, Geo. Mount, Wm. Paul and Son, and L. R. Russell. Silver Floras to Messrs. R. and G. Cutbush, W. H. Page, H. B. May and Sons, and James Veitch and Sons. Silver Banksians to Messrs. Hugh Low and Co., Geo. Bunyard and Co., H. Cannell and Sons, Frank Cant and Co., Carter Page and Co., Dobbie and Co., John Peed and Son, M. Prichard, G. Reuthe, and G. F. Waters.

Certificates and Awards of Merit.

Aerides vandarum, *Kirke's variety* (Mrs. Bevington, Murle Wood Sevenoaks).—This has fairy-like, dainty, blush-mauve-white flowers A.M.

Aubrietia "Lavender" (Mr. M. Pritchard, Christchurch).—A large-flowered lavender variety. A.M.

Auricula Phyllis (Mr. James Douglas).—A handsome alpine variety. A.M.

Hippeastrum Purity (Mrs. Burns, North Mymmes Park, Hatfield).—A large, round, splendidly-formed flowers thick in substance, and pure white with green at the base of the throat. F.C.C.

Odontoglossum niveum (Armstrong and Brown, Tunbridge Wells).—This resembles *O. cirrhosum*, but is smaller and the segments are crimped and very sinuous. A.M.

National Auricula and Primula.

SOUTHERN SECTION.

Although this exhibition at the R.H.S. Hall on April 28 could not be described as an average show as far as numbers were concerned, the quality of the leading exhibits was good—a remarkable feat considering the season. Mr. Jas. Douglas had quite a field day against the forces of the North; while Mr. Martin R. Smith's collections of *Primulas* constituted one of the best features of the show.

There were five competitors in the premier class for twenty-four Auriculas in pots, not less than twelve varieties. Mr. Jas. Douglas, Great Bookham, led off with a nice even display. The varieties were *Favourite*, *Marmion*, *Queen of Spain*, *Mrs. Henwood*, *Acme*, *Harrison Weir*, *Eucharis*, *A. Baker*, *Shirley Hibberd*, *Greylag*, *Geo. Lightbody*, *Abbé Liszt*, *Othello*, *Olympus*, *Rachael Headley*, *Prince Charming*, *Vanguard*, and *Abercrombie*. The Rev. F. D. Horner, Burton-in-Lonsdale, was second with a weaker display. The best flowers were *Dr. Horner*, *Black Pearl*, *Eurydice*, *Minnie Horner*, *Pink Pearl*, and *Azure*. Mr. W. M. Shipman, Cleveley, Altrincham, third; while Messrs. Phillips and Taylor, Bracknell, brought up the rear.

In the class for twelve varieties, distinct, there were again five entrants. Mr. Jas. Douglas again proved victor. The varieties were *Mrs. Henwood*, *Mikado*, *Marmion*, *Richard Headley*, *Charm*, *Eucharis*, *Favourite*, *Amy Robsart*, *Mrs. Phillips*, *Abbé Liszt*, *Harrison Weir*, and *Geo. Lightbody*. Mr. W. Smith, Bishop's Stortford, made a good second. The best varieties were *Seaman*, *Mrs. Osmund*, *Stately*, *Mikado*, *Mrs. Phillips*, *Abbé Liszt*, and *Sultana*. Mr. W. M. Shipman was placed third; and the Rev. F. D. Horner fourth.

The class for six varieties, distinct, was only represented by three exhibitors. The first prize was won by Mr. J. T. Bennett-Poë, Ashley Place, S.W., with a nice even exhibit. The varieties were *The Rev. F. D. Horner*, *Miss Barnett*, *Miss Prim*, *Mrs. Henwood*, *Geo. Lightbody*, and *Rachael*. Mr. Martin R. Smith, Hayes, Kent, was a capital second, with *Mabel*, *Gerald*, and *Miss Prim*; while Mr. F. W. Price, Beckenham, brought up the rear.

The smaller class, for four distinct varieties, was poorly represented, Mr. J. T. Bennett-Poë winning first prize with *Abbé Liszt*, *Acme*, *Mrs. Phillips*, and *A. Baker*; while Mr. F. W. Price was second with nice specimens of *Dr. Hardy* and *Ruby*; Mr. Martin R. Smith a close third.

For a single plant, green-edged, the competition was good, Mr. J. Douglas securing first and second with *Abbé Liszt*; while Mr. J. T. Bennett-Poë was third with *Dr. Hardy*.

The grey-edged varieties were not nearly so strong, Mr. J. Bennett-Poë being placed first with Mr. G. Lightbody; Mr. J. Douglas second with *Richard Headley*; Mr. Shipman third with *Geo. Lightbody*.

For white-edged varieties, Mr. J. Douglas was first with a fine plant of *Conservative*; Mr. J. Bennett-Poë followed with *Vesta*; while Mr. Chas. Turner, Slough, was third with *Acme*.

The selfs were strongly represented, but Mr. Jas. Douglas again came to the front with *Harrison Weir*. The same exhibitor was second with *Victor*; and Mr. J. Bennett-Poë third with *Mikado*.

In the seedlings not exhibited before, Mr. Martin R. Smith was first in green edges with *The Sirdar*; Mr. W. Smith second with an unnamed variety. Mr. W. Smith was first in the grey edges, with *Stately*; while the Rev. F. D. Horner was second with *Graylag*. In the selfs, the Rev. F. D. Horner led with *Dulce*, followed by Mr. W. Smith with *Sunrise*.

The premier class for twenty-four alpine Auriculas, not less than twelve varieties, brought out a fine competition. Mr. Jas. Douglas again carried off the first prize. The varieties were *Lady of the Lake*, *Rosy Morn*, *Teviotdale*, *Mrs. Martham*, *The Czar*, *Flora McIvor*, *Martin Smith*, *Etrick*, *Thetis*, *General Buller*, *Mrs. Jas. Douglas* (premier alpine), *Richness*, *Rover*, *Milkmaid*, *Olivia*, *Argus*, *Claud Halow*, and *Jacoby*. Messrs. Phillips and Taylor, Bracknell, were second, having good plants of *Her Grace*, *Mars*, *Argus*, *Orion*, *Charmer*, *Mrs. Gorton*, and *Majesty*. Mr. Martin R. Smith was an excellent third.

For twelve distinct varieties there were five competitors. Mr. Jas. Douglas again invincible; Mr. Martin R. Smith was second. There were four entries for six varieties, distinct. Here Mr. J. J. Keen, Southampton, scored first; Mr. F. W. Price was a good second; Mr. Bennett-Poë third.

The class for six alpine seedlings brought out three contestants. The first prize was awarded Mr. Martin R. Smith with *Winsome*, *Ophelia*, and *Madame Patti*. Mr. R. Staward, Panshanger, Hertford, was second.

For twelve fancy Auriculas, Mr. Jas. Douglas was easily first with the following varieties: *Old Gold*, *Moonbeam*, *Sunset*, *Innocence*, *Sybil*, *Orient*, *Roll's Red*, *Saffron*, *Quakeress*, and *Moonstone*. Mr. Martin R. Smith was second with good examples of *Buttercup*, *Lucretia*, *Col. C. Frank*, and *J. Hannaford*; Mr. Chas. Turner, Slough, was third.

For a group of Primroses or Polyanthus there were but two competitors, Mr. S. Mortimer, Farnham, being easily first with a splendid strain. The flowers were large and of good form, and the colours bright. Mr. J. Crook, Camberley, was second with a meritorious exhibit.

The premier show variety was *George Lightbody*, exhibited by Mr. Jas. Douglas. The same exhibitor also won premier award with the alpine variety, *Mrs. Jas. Douglas*.

Midland Daffodil.

BIRMINGHAM, APRIL 23 and 24.

The tenth annual show was ushered in by the worst possible wintry weather and fierce winds, sleet, and snow. These conditions continued almost unabated during the day, and with but little lessening on the second day. Rev. G. H. Engleheart, on behalf of the society, presented tokens of esteem to Mr. and Mrs. Sydenham, the presentations consisted of an address in album form, containing the names of the subscribers, and a candelabra. Mr. Herbert Smith, the courteous and energetic secretary, was also presented with a silver tea service in acknowledgment of his able services.

The premier and gold medal exhibit was sent by Messrs. Barr and Sons, London, who had a large collection of Daffodils of a superior order of merit. Silver-gilt medals were awarded to Messrs. Baker and Sons, Wolverhampton, for alpinists; to Miss F. W. Currey, Lismore, Ireland, for Daffodils; and large silver medals to Sir Josslyn Booth, Bart., Lissadell, Sligo (Daffodils), to Messrs. Hogg and Robertson (Daffodils, Tulips, and Anemones); to Messrs. Sutton and Sons, Reading, for a fine display of stellata Cinerarias, dwarf and bushy, also Giant white Italian Hyacinths and border Auriculas; to Mr. S. Mortimer, Farnham, Surrey, for Carnations; to Messrs. Hewitt and Co., Birmingham, for Rhododendrons, Azaleas, &c. Silver medals fell to Messrs. R. H. Bath, Wisbech, for Daffodils; to Mr. R. Sydenham for an interesting display of Daffodils, Tulips, Lily of the Valley, grown in peat moss; to Mr. R. O. Backhouse for a collection of seedling Daffodils, several being of much promise; to Mr. A. M. Wilson, Spilsby (Daffodils), and to Misses Hopkins, Shepperton-on-Thames, for hardy spring flowers.

PRIZE LIST.—There was a very keen competition in some of the classes. The Rev. G. H. Engleheart, as usual, brought a collection of seedlings (unnamed and not offered for awards). In the class for fifty varieties, representing the three divisions (magni, medio, and parvi coronati), there were four competitors. Mr. E. M. Crosfield, Cossington, Bridgewater, won with a superb and excellently well staged lot; second, Mr. F. H. Chapman, Rye, with many blooms of high merit; third, Messrs. R. C. Cartwright and A. R. Goodwin, Kidderminster; and fourth, Messrs. Pope and Sons, King's Norton. For nine distinct varieties of yellow-self Daffodils, Messrs. Cartwright and Co. won

with *Goldseeker*, *Bennett-Poë*, *Mervyn*, *Rising Sun*, *Glory of Leiden*, *Emperor*, *Admiral Togo*, and *Golden Spur*; second, Messrs. Pope and Sons, with *Maria*, *Glory of Leiden*, *Van Waverin's Giant*, *Lucius*, *Enchantress*, *Captain Nelson*, *Quintius*, and *James Veitch*. For nine distinct bicolors, Messrs. Cartwright led with *Empress*, *Mrs. R. Sydenham*, *Grandee*, *Ailsa*, *Horsefieldi*, *Madame de Graaff*, *Weardale Perfection*, *Madame Plomp*, and *Glory of Noordwijk*; second, Messrs. Pope. For nine distinct medios, Messrs. Cartwright were again to the fore with *Torch*, *Mrs. Thorley*, *Leonine*, *Northern Light*, *Aristocrat*, *Homespun*, and *Blackwell*; second, Messrs. Pope with *Cristata*, *Blackwell*, *Leonine*, *Queen Sophia*, *Frank Miles*, *Sir Watkin*, *Gloria Mundi*, *Torch*, and *Princess Mary*. For nine white perianth medios, first, Messrs. Cartwright, with *White Lady*, *Duchess of Westminster*, *Seagull*, *White Queen*, *Lady Margaret Boscawen*, *Diana*, *Arnold Rogers*, and *Marina Citron* (?). Second, Messrs. Pope, with *Dorothy Yorke*, *Will Scarlett*, *Queen Alexandra*, *Barbara Holmes*, *Lucifer*, *White Queen*, and *Lady Margaret Boscawen*. For twelve distinct "parvi's," Messrs. Cartwright and Messrs. Pope were the respective winners, both with good flowers. For six distinct poeticus, Mr. F. H. Chapman was to the fore with *Homer*, *Almira*, *Dante*, *Bardeolle*, *Horace*, and *Virgil*; second, Messrs. Cartwright, with *Juliet*, *Dante*, *Virgil*, *Homer*, *Cassandra*, and *Horace*. For six vases of double Daffodils, not less than four varieties, Messrs. Cartwright and Co. were the only exhibitors, with *Golden Phoenix*, *Argent*, *Orange Phoenix* (2), and *Sulphur Phoenix* (2).

In the classes open to amateurs only, some of the foregoing sections were very well represented, as were also the single-bloom classes, open to all exhibitors. There was considerable interest evoked in the competition for the Cartwright challenge cup for a group of twelve distinct varieties of Daffodils that have not been in commerce more than four years, three stems of each. Mr. E. M. Crosfield was triumphant with *Penguin*, *Tara*, *Lolah*, *Athelta*, *Stay-sail*, *Mrs. Ernest Crosfield*, *Radiant*, *Potent*, *Makeshift*, *Phantasy*, and *Giraffe*; second, Rev. R. G. Haydon, Westbere, Canterbury, with *Duchess of Kent*, *Kuroki*, *Bugler*, *Kenneth*, *Our Berrie*, *Madame Kuroda*, *Marchioness Oyama*, *Beatrice Barber*, and *China-ware*. In the class for six distinct varieties, Messrs. P. D. Williams, Cartwright, and Pope were the respective winners.

Narcissi were super-excellent as grown in pots, the chief prize-takers being Messrs. W. H. Parton, King's Heath; J. A. Kenrick, Berrow Court; J. A. Kenrick, Harborne; and J. Seeany, Harborne. Tulips were also splendidly staged, chief winners as above.

First-class certificates were awarded to Mr. C. Dawson for *Narcissus Buttercup*; and an award of merit to Messrs. Barr for mossy *Saxifraga*, *Ditton Crimson*.—W. G.

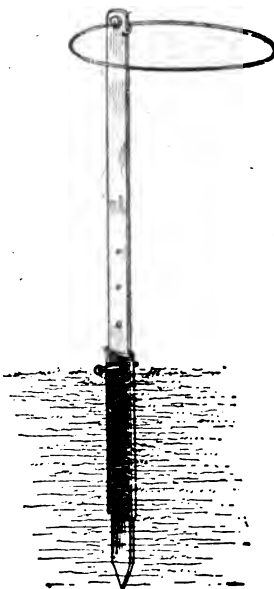
[We regret to have to hold over reports of the shows at the Royal Botanic Gardens, and at Norwich.—Ed.]

Inventions.

"The Ever-growing Plant Support."

A very useful appliance surely! This new form of support has been brought to our notice by the patentees, Messrs. Smith, Fletcher and Co., wirework manufacturers, 172, High Street, Edinburgh.

The details of their "telescopic" plant support are described by them as follow:—"As the plant grows and increases in height, the support likewise extends. Our new registered plant support is telescopic, and it meets a long-felt want. With a rapidly growing plant it is always difficult to keep it satisfactorily supported without a great deal of trouble. This support has an iron prong, with a sheath which goes into the ground, and into this sheath the support slides, and it can be raised gradually to support the increasing height of the plant. The ring is ingeniously arranged so that it falls back for packing, but does not drop when placed in position for the plant. The support is strong, neat, and well made, and it is practically indestructible, so can be used year after year." These are made in certain stock sizes: (1) rising above the ground from 12in to 2ft 9in; (2) 12in to 3ft 6in; (3) 12in to 4ft 3in. The wire ring can be made any diameter, but the standard size is 10in.



Young Gardeners' Domain.

* * The prize is awarded to Mr. F. Baker, The Nunnery Gardens, Douglas, I.O.M., for his letter hereunder. Letters should not exceed 500 to 600 words, and ought not to be written on both sides of the paper.

Children's Gardens.

Having been a reader of the *Journal* for a considerable length of time, and not having seen "Children's Gardens" used as a subject of competition in the "Young Gardeners' Domain," I thought I might utilise some spare time in the endeavour to draw attention to this subject. In this letter I should state that I am dealing with children's gardens of the wealthy. The first thing to occur to our minds in respect to these little gardens should be the fact that eventually these cultivators of small plots will become the owners of the large gardens that are the pride of English horticulturists to-day. It would not be asserting too much to say that proportionate to the amount of interest taken by children in their little plots will be their care of the larger gardens in the future. It is also certain that if these juveniles discard the love of their gardens for more modern pleasures, such as motoring, all the splendid efforts of the British Gardeners' Association in promoting the welfare of gardeners will be in vain. It is, therefore, incumbent upon all gardeners, as far as it is in their power, to encourage a love of horticulture.

In laying out children's gardens distinct divisions should be made by forming little paths between each plot. If a journeyman is required to assist in the planting, a good method to adopt would be to plant easy-growing perennials, as Michaelmas Daisies, Doronicums, Delphiniums, also a few Crocuses, Narcissi, Tulips, and Hyacinths, to make it bright in the Spring. Allow sufficient space between the perennials for clumps of annuals, such as Sweet Peas, Sunflowers, Larkspurs, Lavateras, Clarkias, and Godetias, in variety. Also the pretty Love-in-a-mist (*Nigella damascena*). Small bowers can be made with *Tropeolum canariense*, climbing *Convolvulus* of various colours, also *Humulus variegatus*, using some pliable twiggy sticks, tied together on the tops, to form the arches. This would afford great delight to the children, and be also a welcome shade on sunny days. Plant the Golden Feather or dwarf Lobelia that is to spare after the bedding-out is completed, to form the respective name of each child, as this is always a ready means of attraction and pleasure. Hardy annuals, such as *Saponaria calabrica* (pink or white) can be sown for the same purpose.

In conclusion, if children have any particular plants, good, bad, or indifferent, that are special favourites, I should advise all young gardeners to treat these with respect, because even children have their little sentiments, which should be duly nurtured.—F. B., Douglas, I.O.M.

Items of Interest.

When a young man obtains a situation in a garden, what is his intention? Now, I wonder how many young men there are who started with the intention of becoming practical gardeners. I am afraid there is quite one half who did not. There may be a vacancy in the garden of some large establishment: Some strong healthy young lad of fourteen or fifteen obtains the situation; he has the ordinary work of crocking pots, &c., and is found to be very willing and obliging, and is well beliked by all. They therefore offer to teach and show him anything that will be useful to him later on. But what is the answer of many young lads. It is this: "I don't want to bother about that; I ain't going to be a gardener; I'm going to join the army when I'm old enough," or it may be the police force, or some other occupation. When the time comes for him to join, he is examined and found unfit owing to bad eyesight, bad teeth, or some other defect. He has taken no interest in his work hitherto, but merely looked forward to Saturday night, and to the happy times he will enjoy in the future. Now he has to return to gardening, of the principles of which he is practically ignorant. It may be that when he gets to the age of about twenty he gains a little of what we call common sense, and makes up his mind to be a good gardener; but whichever it may be, what is the result? He has already wasted four or five years of the principal part of his life, for one year in his youth is worth four of his old age. To be a practical man he has to start at the bottom of the ladder and be taught by children.

Can we be surprised at there being so many inexperienced men at the present day when this is how they start? They are not only a burden to themselves, but are keeping hundreds of excellent men out of employment, and are spoiling some of the best places in the country. I am sorry to say that when I first started I did not take the interest in my work I should have done, although I intended from the first to follow the profession. But I used to think there were too many for us all to be head

gardeners. Some of the best men are unlucky, and some will not lower themselves to receive the paltry wages that are offered, and which the inexperienced men obtain—and are found to be the dearest in the end. It may be that we as journeymen are often reprimanded, and fancy we were being "put upon"; but generally it is not without a cause. It does one good to be under a strict master. I hope that we all shall bear in mind that we can help others as well as others help us.—F. F.

Manuring.

It is not my intention in this short article to treat this diverse subject on a scientific basis, but rather I would judge my effort well rewarded if I am able to explain to some of your young readers a few of the reasons for manuring. To start with, plants, like every living thing in this world, must be fed; that is to say, they must be supplied with sufficient nutriment to enable them to build up growth. Now, there are two ways in which a plant is enabled to supply itself with this nutriment. The first by the leaves, viz., gaseous assimilation; the other by means of the roots, namely absorption. It is a fact that we are not in all cases able to command the atmosphere sufficiently to enable us to profit to any great extent by the former action, and so we must of necessity turn to the latter and more general way of manuring. It stands to reason that no soil can endure for any length of time the loss of mineral substances which form part of the crop; hence then, the necessity to supply sufficient nutriment by manuring. It is, of course, easily understood that all plants cannot be stimulated to the same extent by the application of one kind of manure. So much as the plant differs materially in growth and requirements, so much must the manure differ to fit in as near as possible with those individual requirements.

As a practical illustration, you would want a much more lasting manure in constructing a fruit border than you would for any of the annual crops, say Celery; while the former would require a slow acting, as well as lasting, nutriment, the latter would be benefited more by a quick acting and more soluble manure. The nature of the manure used always, of course, depends on the condition of the soil. If clayey and stiff, something that will make it more open and porous is advisable; if light and sandy, add something to make it more retentive, always aiming towards the spongy ideal, that is a soil that will retain the greatest amount of nutritive substances and water without losing its capacity of absorbing air.

In the case of pot plants, by reason of the more artificial mode of culture, we are compelled to use methods differing altogether from those employed outside. The various soils used in potting generally contain sufficient food matter for the plant; but even the richest soil cannot last long in the limited space of a pot. We, therefore, as soon as a plant finishes the existing food matter, supply more by repotting as far as our space will allow. Then again, we have to turn to our artificial manures. It requires a deal of thought to be successful in the manipulation of these highly concentrated forces. Always take care the plant is well rooted before application, taking into consideration the varying quickness and slowness of growth. Young gardeners are apt to be too eager for quick returns, but they should bear in mind that a steady application of weak manure stands more for success than a spasmodic overdosing. Try not to think of that part of the plant that is visible above the pot only, but take into consideration those tiny root hairs which have their place to fill as conductors, and which, if injured, may ruin the whole structure. It would not be considered advisable to try and stuff a small boy with food in the hope that he would the more quickly grow into manhood. No more, then, is it advisable to overmanure plants. Thoughtful steadiness then must be our motto.—H. Wood, Lydhurst.

Salvia splendens

Few decorative plants brighten the conservatory more during the latter months of the year than a well-grown batch of *Salvia splendens*. Their brilliant scarlet bracts are greatly admired when mixed with some white-flowering Chrysanthemums. Salvias can either be propagated from seed or cuttings. Cuttings are preferable, and should be struck in February. Select them from the base of the plant when about 2½ in or 3 in long. They will strike readily in a vinery in a sandy compost. When rooted they may be potted into 2½ in or 3 in pots. The compost for the first potting may consist of equal parts of good loam, leaf mould, dried cow manure, and coarse river sand, well mixed together. The plants must now be kept well up to the glass to prevent them becoming drawn. By the month of April the plants will require to be shifted into their flowering pots, two plants to be placed in each pot, 7 in and 8 in will be found a very handy size, in which really good specimens can be grown. The compost for the final potting should be of a rougher nature than before, and may consist of two parts good fibrous loam to one of leaf mould and dried cow manure, with a good dash of coarse sand, and a sprinkling of some approved garden fertiliser. The plants should now be placed in a close frame, and kept

well up to the glass. Later on the plants may be removed to a cold frame for the summer, and kept well exposed to light and air; in fact, in sheltered places they may be grown in the open during July and August. The plants should be pinched when 4in high, and finally about the beginning of August; then they will require staking and removing to the greenhouse. They may now receive soot water and liquid manure from some fertiliser at every watering. They are gross feeders, and soon respond to liberal feeding once the pots become pot bound. When well grown few plants excel them for brilliancy from October to January, and the wonder is why they are not more extensively grown.—WILLIAM SMITH, Broughty Ferry.

Bothy Life.

I cannot agree with Mr. Cave's views of bothy life as expressed on page 389. He asks if the bothy is as much benefit to the average gardener as it is thought to be. He refers to the popular belief that its inmates stay in at night after work to study and discuss various branches of horticulture, as not being correct in the majority of cases. Cannot a bothy inmate study and argue on points in reference to his work without staying in to keep the duty man company, for whom Mr. Cave seems to have so much pity? Cannot he visit a friend in the neighbourhood, or even a few miles away, if he owns a bicycle, and confer or study with him, and compare results? Could he not attend botany classes, should any be held near at hand, and thus improve himself far more than if he stayed and debated with the duty man the whole of the evening? Surely this would be a change from the isolated bothy, as well as benefiting its inmate, who makes use of the "change." Will Mr. Cave also believe that some of the hundred various other items of the day affect gardeners as much as horticultural subjects do? It is one of an Englishman's greatest and most important duties to follow up and find out what progress the existing Government is making. How does the Employers' Liability Act affect gardeners should an accident happen to any of them? In fact, the majority of the national items of the day affect gardeners in one way or another.—ONE WHO LOVES HIS WORK.

The Progress of a Young Gardener.

Much of the progress of a young gardener depends on the surroundings in which he lives, and the influence of those about him. The first question he should ask himself is, Have I an ambition for gardening? If so, then it will require all his skill and energy to make the most of his time and to gain the front rank of gardeners. If, on the other hand, he has no ambition for the profession, he ought to leave it, as I think nothing is more harmful to the gardening fraternity than to have so many "half-and-half" sort of gardeners. The young gardener should always be thorough. If he continues in this manner, his chief cannot help noticing his good points, providing he is a just man and delights in seeing his young men making their mark. Then when a chance for promotion comes, the one who takes the keenest interest in his work naturally has the first chance. Of course, all have not the same opportunities as others, yet I would advise these not to be discouraged, for if their idea is good they cannot but succeed sooner or later. How often do we hear and read of those who have witnessed the hardest of difficulties, and who, by their ambitious spirit, have overcome them and crowned their labours with success. How often do we hear the phrase, "Oh, anyone can be a gardener"; but if all had to go through the minor details of a gardener's work many would be glad to resign their position before a month was over. This saying often has a tendency to discourage a young gardener, but there is a good deal of difference between a good and a poor gardener. The gardener's mind is always occupied.—C. E., Grimston Gardens, Yorks.

Single-stem Crotons.

A span-roofed house, running north and south, is far the best for Crotons, as you get light and sun all day, which is essential. Take a cutting 3in long, place it in sandy soil in a thumb pot, plunge in a propagating case where a moist atmosphere of 75deg can be maintained. When rooted, pot up into a 60-sized pot, using for this potting two parts fibrous loam, one part leaf mould, half part peat, add sand and charcoal. Pot on as may be required. When the plant has become leggy ringing is practised with success. The process of ringing is to first take the plant and insert a knife under a node; make an upward cut an inch long, penetrating one-third through the stem. Make three cuts on a large plant. Place a bit of wood in the tongues to keep them open. This done, take a smallish cracked pot according to the size of the plant, and split this in half. Next take two stakes as long as the plant, and fix these on opposite sides, and having fitted the halves of the pot together around the half-severed stem, bind them firmly. The compost may be then placed into the pot, and may consist of two parts fibrous loam, one part peat, one part leaf mould, a liberal supply of silver sand, and crushed charcoal; work it loosely in,

and settle it by watering. Decrease the water gradually from the old stool, and increase the supply above. When you detect roots at the bottom, take off the halves of the pot and replace with larger ones. Cut through the bark with a knife just under the fresh pot. For this potting compost use more loam, with less peat and mould. Keep the old stool on the dry side now to encourage the roots into the fresh compost. Gradually increase the cut under the pot at intervals until it is nearly severed, but take care not to let the rung portion get dry, nor keep in a too wet condition, as the roots soon decay. When they are seen penetrating through, sever the stem entirely from parent stem, and pot up in a long pot.—J. F. H., The Hermitage, Nottingham.



Renewal of Populations.

Until the introduction of the movable comb hive, the natural economy of a colony of bees was imperfectly understood through its being impossible to invade the hive and ascertain its condition on fitting occasions, and it was thought that the bees left in the hive in the autumn all lived until the ensuing Spring, and then by breeding produced a large population of young bees to form the swarms of future hives. The bar frame hive, however, has altered all this, and has also taught us that the population of a normal colony will have been almost entirely renewed between the closing days of Autumn and the following Spring.

An interesting experiment to confirm this can easily be tried. If an Italian queen is introduced in the Autumn, the ensuing Spring it will be found that the population of the hive will be composed of almost all Italian bees; there can be no doubt about this experiment, as the bees cannot by any conjuring be induced to change their colour. The black bees will wear themselves out in raising the young population, and this brings us to the point where we can see what occurs when a colony has been prevented breeding during the five or six months of Autumn and Winter. It will be found that the bees not having laboured to produce brood, as mentioned above, will not be exhausted, but it must be borne in mind that the older the bees become the less use are they as nurses in raising brood, it is not their forte; their duty should be honey gathering and the defence of the hive, and it would appear that they are unfitted for anything else when old.

Young bees are required for nursing, as experience proves, and it is a striking fact that a hive which has bred no young bees during the Autumn months often has a severe struggle to live through the first few weeks of active breeding in the Spring, no matter from what cause the increase has been delayed. If through shortness of stores, as is sadly too often the case, the breeding is suspended until the Spring blossoms open, the majority of old bees will seek the honey as the first necessity, and many get lost in doing so, and although the queen is stimulated to activity and is willing to stock the hive with eggs, she can only deposit just as many as the cluster of bees can cover and hatch, and then comes the difficulty of feeding. Chyle-food of the young larvae is elaborated in the stomachs of young bees, and old ones are not of much use, not being equal to the task. Old bees can and do raise brood from eggs, but the observer will affirm that for every young bee raised, at least five old ones succumb, and how many thousands of cases have there been found at this time of the year where the old bees die off too rapidly, and leave the queen with but a handful of bees to attend to considerably more brood than they can cover, much of which requires only perhaps one or two days more warmth to bring it to hatching point and re-establish the colony.—E. E.

Schedules Received.

Bolton Horticultural and Chrysanthemum Society; secretary, Mr. Geo. Corbett, Heaton Grange Gardens, Bolton. The twenty-second exhibition of Chrysanthemums, fruit and vegetables will be held in the Albert Hall, Bolton, November 20 and 21.

Bath Gardeners' Debating Society; secretary, Mr. F. L. Ashman, 10, Caroline Buildings, Bath. The fourth annual Chrysanthemum and autumn show will be held in the Assembly Rooms, Bath, on November 4 and 5.

Scottish Horticultural Association; secretary, Mr. A. D. Richardson, 19, Waverley Market, Edinburgh. The annual great Chrysanthemum exhibition will be held in the Waverley Market, Edinburgh, on November 19, 20, 21. Prizes amount to over £450.



Hardy Fruit Garden.

FRUIT AND FROST.—One or two recent frosts will, it is to be feared, have the effect of considerably thinning some of the Plums that were in flower at the time. We have noticed a number of damaged blossoms of Early Prolific and Monarchs, with a few Pear blooms here and there, and it is certain many embryo berries of Gooseberries are injured. The damage may not be serious, we do not think it will be found so, but still there has been a thinning, and it will be something to be devoutly thankful for if we can escape further injury from frosts this spring. In addition to the frosts, the cold cutting winds experienced, with occasional storms of snow, can scarcely be expected to have had a good effect upon the developing flowers.

GRAFTING.—We have recently been grafting a number of stocks, but the more unfavourable time we have seldom known for the work. Stocks appear to be very sluggish, and the prospect of a high percentage of sound unions does not at the moment of writing seem at all favourable. A few warm, showery days at once would no doubt work wonders for both stocks and scions. With a continuance of cold drying winds, those who use clay for covering their grafts will need to look closely after the material, stopping cracks at once where found.

WALL TREES.—To ensure satisfactory growth, healthy and free from insect pests, it may be found necessary to thoroughly water trees growing against south walls or fences. A thorough saturation at the foot of the wall, which we have found the rains of winter do not always reach, will benefit trees a good deal which are growing in light sandy soil. For heavier colder land this watering will probably be unnecessary for several weeks. We have found this watering, followed by an application of liquid manure, of great help to trees in poor soil, especially when they have previously been neglected to some extent.

RECENTLY PLANTED TREES.—See that these are all properly staked and tied where needful, and wall trees may now be properly secured in position, having been left rather loose against the walls to allow for soil sinkage. Many of these trees may derive benefit from the removal of central shoots or where they appear to be breaking too thickly. Early removal of the superfluous shoots may be found to save much after cutting and pruning of the trees. Place a mulching of loose litter over the roots or trees planted in light sandy soil.

PEACHES AND APRICOTS.—The protection for these ought to be removed from the trees without delay, if still in position over them. In the case of extra heavy crops of fruit having set, at once proceed to remove the smallest of the fruits. Attend to disbudding, reducing the number of growths gradually, not allowing the shoots to become too long before commencing their removal, and not removing a great number at one time.—J. W., Evesham.

Fruit Culture Under Glass.

EARLIEST VINES.—The berries will now be colouring freely, and less atmospheric moisture will be required. As the berries at this period of their growth swell rapidly, the roots must be treated liberally. This is more necessary in the case of pot Vines, as lack of moisture will check the colouring process. Pot Vines should have another mulch to assist growth, and also save so much watering. To early Vines in borders, a mulch of decayed cow manure or Mushroom manure is a splendid fertiliser. Previous to the mulching the border should have a thorough watering with liquid manure. Attention should be paid to ventilation, and during the past week this has been a difficult matter. Whenever possible, air should be afforded freely to prevent condensation of moisture on the berries.

MUSCATS AND OTHER GRAPES.—Madresfield Court and Duke of Buccleuch require more care just at the finishing or final swelling than others, as these crack badly if over-watered; indeed, I have occasionally noted it arise from a close moist atmosphere, and so with these it is well to ventilate freely. Keep a crack of air on the top ventilators at night, and maintain a mild or regular heat in the hot-water pipes. I have also seen Madresfield's scald badly after a spell of dull weather, especially if closely stopped. This can be avoided by a little thin shading just as the berries are at the critical stage. The temperature for these Vines should now be 70deg to 75deg by

day, and a liberal rise with sun heat, and the night 10deg lower than the day temperature.

LATER VINES.—These, having made fair progress, should have the temperature increased, and the superfluous bunches thinned out. As soon as the berries are set lose no time in thinning, beginning at the warmest end of the house. Give a liberal amount of atmospheric moisture. The temperature for Muscats coming into flower should be a liberal one, 70deg to 75deg by day, with a free rise by sun heat. Vines just showing their bunches should be disbudded, and this requires care. Leaving a liberal number of strong shoots, removing weak ones, and distributing them evenly over the trellis.

NEWLY PLANTED VINES may be given supports at an early stage, and the growth for the permanent cane or rod selected, others being removed. The main shoot is encouraged till it attains three or four feet, then stopped.—G. W., Brentford.

The Plant Houses.

SALVIAS.—During the winter months there are several species of Salvia which prove valuable for the decoration of the conservatory or flowering house. The first to flower is *S. splendens*, of which there are several sorts. Others which flower in autumn and early winter are *S. farinacea*, lavender blue; *S. involucrata* var. *Rethelli*, rosy-pink; and *S. azurea* var. *grandiflora* (sp. *Pitcheri*). Following these are *S. leucantha*, lavender and white; *S. rutilans*, the Pineapple-scented Sage with red flowers; and in early spring we have *S. Heeri* with scarlet blossoms. Cuttings of all the above may now be inserted in a close propagating frame. The points of the shoots should be removed twice or thrice to multiply the growths on the plants, this must, however, not be carried too far, or the flower spikes will be small. In the case of *S. azurea*, for instance, four shoots on a plant are ample. To obtain good specimens, it may be found advisable to grow three plants in a 10in pot, rather than one in a pot 6in or 7in in diameter.

EUPATORIUMS.—These also, like the Salvias, furnish several valuable winter-flowering plants. Two tall growing species are *E. trapezoidum* (*adenophorum*) and *E. Purpusi*, both with white flowers; these flower in March. For the stages we have *E. vernale*, white; *E. ianthinum*, pale lavender; *E. ivaeifolium*, blue; *E. Weinmannianum*, *E. probum*, white; *E. monticola* (*petiolare*) white; and *E. riparium*, a spreading plant, and very suitable for hanging baskets. Cuttings of all those named root readily in sandy soil in a close frame.

ROSES.—The permanent plants growing in the borders of the Rose house will benefit by an occasional soaking of weak liquid manure. The plants in pots which are growing freely may also be given some. Syringe morning and evening on bright days. Green fly is usually very prevalent at this season, fumigation being necessary every week or ten days. A night temperature of about 50deg F. is ample, rising 5deg or more with sun heat. Ventilate freely, always, however, avoiding draughts, a matter especially requiring considerable attention during the past week or more.

CUTTINGS.—The following may all be inserted at the present time: *Streptosolen Jamesoni*, the rich orange-coloured flowers of which are very welcome in the greenhouse. *Plumbago rosea*, a species requiring warm greenhouse treatment; in addition to cuttings shake out and repot a few of the old plants, using a compost of equal parts loam, peat, and leaf mould, mixing in plenty of coarse sand. *Plumbago capensis* and the variety *alba*; *Lantanas*, including *L. salviafolia* (*delicatissima*). The latter seems to be almost always in flower, and is useful for clothing pillars, for hanging baskets, or large specimens in pots or tubs. *Bolvardias*, *Hibiscus rosa-sinensis* vars., bright coloured flowers, though rather fleeting. *Senecio Petasites* and *S. grandifolius*, two valuable Groundsels, which flower in winter. The plants must be grown on without stopping to obtain large flower heads.

PROPAGATING HOUSE.—In this house there is perhaps more work at this season than at any other. Seedlings require pricking off, rooted cuttings potted off singly in small pots, and others inserted. Crotons which were rung and mossed early in the year are rooted and ready for potting off. Keep the young plants as near the roof-glass as possible, shade newly-potted plants, never allow young plants to become pot-bound.

GENERAL REMINDERS.—Prune Camellias as soon as the plants are out of flower. It is very necessary to do those planted out in the borders, as they usually make a lot of growth, and soon get out of hand. Bring into the greenhouse a number of the early-flowering *Gladiolus*, *The Bride*, &c.; weak applications of manure water will be found beneficial. Sow seeds of *Primula verticillata*, *P. floribunda*, and *P. kewensis*. Pot winter-flowering Carnations into 5in pots. Continue to pot *Chrysanthemums* as they require it, and place the plants close to the glass in a cold frame.—A. O., Kew, Surrey.

TO CORRESPONDENTS

All Correspondence relating to editorial matters should be directed to "THE EDITOR," 12, MITRE COURT CHAMBERS, FLEET STREET, LONDON, E.C. Persons sending manuscript or photographs, when not specially requested by the editor, and making no demand for remuneration, are presumed to solicit publication without payment. In order that no misunderstanding may arise, and in order to secure the return of their contributions, contributors should state the fact that they expect remuneration, and in all cases, even when contributing voluntarily, correspondents should enclose a stamped envelope if they expect their enclosure to be returned.

PARCEL LOST IN THE POST.—A label, bearing the post-mark "Newport, Mon.," has been sent to us by the post office authorities, it evidently having become detached from a parcel or package. It arrived on Saturday.

RUST ON GRAPES (G. W.).—The rust is the result of injury to the skin of the berries whilst tender, hardening it so that they swell irregularly, giving them a rusty appearance, and greatly detracting from their value when ripe. Brushing the bunches with the hand to secure a better set of berries in a rough way, or rubbing them in any way, are causes of rust. But rust is most common in houses where the heating apparatus is too highly heated so as to produce a dry atmosphere, with or without fumes from sulphured pipes. The berries are often rusted in the immediate neighbourhood of the hot-water pipes, and nowhere else in the house. That means overheating or sulphuric fumes, therefore sulphur should not be used on the pipes whilst the Grapes are young. A sudden check is another cause of rust. Allow the temperature to rise from sun heat to a high degree in the morning without air, then admit it in quantity so as to cause a cold draught, and the consequence is rusted berries. Rust prevails on outdoor Grapes because the atmosphere has been warm and moist, and is followed by a period of cold and dry weather.

PEACHES (H. O. C.).—The calendarial notes, "Fruits Under Glass," are very copious and always timely. You will, of course, follow them pretty closely. The first swelling of the fruit commences directly the fruit is set. To assist in casting off the remains of the flowers, the trees may be syringed on fine mornings, also early in the afternoon, when the weather is bright, but anything approaching to a close humid atmosphere must be avoided. During the first swelling the fruit will, or should, attain to the size of a small Walnut, and after that the formation of the stone commences. The fruits that last year reached the size of a small marble then refused to grow and dried upon the tree and remained till pulled off about Christmas, were evidently imperfectly fertilised, and as such did not enter on the stoning process. Such usually drop off. The fruit not so affected then gradually enlarges, but slowly, and appears almost stationary for a time. Care must be exercised during the stoning to avoid undue excitement and checks. The stoning process usually occupies six weeks, some varieties less, other sorts longer. The completion of the stoning process can be ascertained by testing a fruit with a needle or knife. If stoned, it will not be pierced or cut through; then, not before, the ripening of the fruit may be accelerated by a warmer and closer atmosphere.

ROSE CASTING-LEAVES (Rosarian, Muswell Hill.).—This is a most tantalising affair, and occurs with plants both planted out and in pots. We have noticed it most in cold houses, and in some cases it arises from defective root action, the plants appearing to use the stored matter in pushing the flowering growths. This has sought to be avoided by supplying nutrient matter as soon as the buds commence growing, by a top-dressing of fertiliser, such as a mixture of 3 parts superphosphate of lime, 2½ parts nitrate of potash, ½ part sulphate of magnesia, ½ part sulphate of iron, and 2 parts sulphate of lime, mixed, using at the rate of 1½ lb per square yard, taking a proportionate part for the area of a plant in a pot. But the chief reason, so far as we could make out, was the sudden change of temperature in the cold house as compared with a heated structure. During a dull and cold period the temperature in a cold house is low, and the house being kept close there is little or no evaporation taking place from the leaves; then there follows a spell of bright sun; air is given, and the atmosphere suddenly dries; evaporation from the tender leaves proceeds rapidly, a check is given, and the leaves fall off. We have had this occur frequently in a cold house, while in one from which frost was only excluded the plants retained their leaves and developed their blooms satisfactorily.

VINE LEAVES (J. D. and F. T.).—The leaves are affected by warts, an affection that seriously cripples the leaves and hinders the due performance of their functions. It is caused by a sudden exposure of the young growths to cold and dry air after they have been grown in a close and warm atmosphere excessively charged with moisture. Small greenish excrescences form on the under side of the leaves, and the upper surface is furrowed and uneven. A Vine badly affected by this affection is a long time in recovering; indeed, does not recover in the affected leaves during the season. It is not an indication of ill-health, but of irrational treatment. There is no cure, but it may be avoided by timely and perfect ventilation on bright mornings, admitting air carefully on the return of bright weather after dull periods; and when the air is sharp, do not allow it to drive full upon the foliage nor produce cold dry currents.

GRUBS ON STRAWBERRY PLANTS (F. L.).—The grubs are those of the "daddy longlegs" or crane flies (*Tipula oleracea*), and in the present stage known as leather-jackets. The eggs of the pests have probably been laid in the autumn in the turf of the pasture, and from the eggs the grubs have hatched out that are doing the mischief, destroying all the leaves of the Strawberry plants. The dressings of soot and lime you have given having been poor in result, you may try dressing the ground with finely crushed nitrate of soda, 2½ cwt. per acre, or 14½ lb per rod (30½ square yards), which usually checks the ravages of the leather-jackets or grubs, causing them to become very relaxed, soft, and helpless, this helplessness being a very important point, for thus the grub, instead of creeping away, is kept under the action of the solution, good for the plant but bad for itself, and ultimately dies. The grubs may sometimes be attracted by a top-dressing of rape-cake, say 5 cwt. per acre, 3½ lb per rod, and then the dressing of nitrate of soda applied to finish them off. Both the rape-cake and nitrate of soda are, as you well know, good fertilisers, the rape-cake being turned under after the leather-jackets are disposed of.

Law Notes—Rating.

A case of considerable importance was heard at the Herts Quarter Sessions a few days ago. It was an appeal by Mr. G. Beckwith, of Hoddesdon, against the assessment of his nurseries by the Ware Assessment Committee. Mr. A. Macmorran, K.C., and Mr. Naldrett, instructed by Mr. C. G. Scott, of 35, New Broad Street, appeared for the appellant, and Mr. W. Ryde and Mr. E. N. Konstam, instructed by Mr. G. H. Girby, appeared for the respondents.

Mr. Macmorran said that in 1896 the values of the property were fixed at £240 gross and £180 rateable; in 1898, after some small additions to the property, the figures were raised to £252 and £189 respectively; in 1904 a new valuation was made, and the figures were then placed at £338 gross and £225 rateable. These figures were not appealed against, though considered too high, but in 1907 the Assessment Committee again raised the assessment, and this time to £740 gross and £370 rateable, and against these figures Mr. Beckwith appealed. There were forty-six houses, thirty-three of them built of iron by the late Mr. Beckwith, and now out of date. Counsel argued that £740 a year rent, as suggested by the assessment, was a ridiculously high sum, and the highest value of the premises was £316 gross and £169 rateable. Mr. J. B. Slade, F.S.I., of Messrs. Protheroe and Morris, Cheapside, said he had carefully valued the property, and estimated it at £4,881 4s., which worked out at an assessment of £316 16s. gross, and £169 8s. rateable. Mr. Edmund Rochford, Mr. Charles Kinnell, and Mr. A. L. Rogers (W. Duncan Tucker and Co.), also gave evidence in support of the appeal.

After hearing the case for the respondents, whose various witnesses assessed the property between £500 and £600, the Court found for the appellant, with costs, and the assessment figures were reduced to £350 gross and £234 rateable.



The Hop Industry.

We approach this subject with the diffidence born of ignorance. Our own experience of hop growing is simply the employment of the hop as an elegant climber, easily grown and very decorative. But at the same time it is impossible to take an interest in agricultural matters without observing what a promi-

ment position the hop takes during the later summer months. There are reports from all the districts, and almost, we might say, from every individual grower. And we have often wondered how they managed to secure a crop at all, considering the dangers and difficulties that overtake the bine during its time of growth. We have wondered at the patience bestowed on the careful cleaning of the soil; at the greater patience exercised in the continued washings; and we have come to the conclusion that we would rather produce the other constituent of the beer, i.e., barley. Barley is bad enough at times, but, after all, there are other openings for barley should the maltster decline it, whereas we have never heard yet of any other destination for hops save the brewery.

The growers of to-day aver that the hop industry is on the verge of ruin. Why? Has beer ceased to be the staple drink of the greater number; or is it that good prices have tempted to over-production? We believe that beer is as popular as ever, and certainly there has been no over-production. In 1878 the acreage of hops was 71,789; in 1907 it was 44,938. In Kent in the year 1878 the acreage was 46,593, and last year it was 28,169. Kent accounts for about 60 per cent. of the total acreage under hops. The decline in acreage has been in Kent 47 per cent.; in the other hop-growing districts 37 per cent. The limit has not yet been reached, for we learn that in Kent between 4,000 and 5,000 acres are being grubbed up this year, and most of the land laid down to grass.

Now, this grubbing up of the hop plantations is a very serious thing, and in more ways than one. Those farmers who have depended largely on hops are in a very bad way financially. Some have gone down altogether, and others are on the verge of ruin. These farmers are not such a very large proportion of the community, but all the same, it is sad to think that with all their efforts, or rather, perhaps, in spite of their efforts, ruin stares them in the face. But with the farmer, closely linked with him in fortune, good or ill, is the agricultural labourer, with his wife and family. When we consider that every acre under hops represents roughly £25 spent in labour, we want to know what other employment there is that will afford these wages to the working man? Certainly grass land will not; and where is the displaced labourer to go? We are trying with one hand to lure men back to the country, and with the other thrusting them away. The newly-imported men will have to learn much before they can make an adequate living out of their small holdings. The men who are leaving the hop fields have their trade at their fingers' end, are held to their villages by what should be the strong cord of good employment at a good wage, and yet they are being disbanded. It is no use fighting against the fact; there it is in all its hideousness. The farmer cannot help, the brewer will not, and the Government remains in a state of apathy. Our corn growers are in a bad case; our meat producers never quite know how soon the clause that forbids the landing of live fat stock may be rescinded, and the foreign-grown hop comes into our market without let or hindrance.

We are brought face to face with the old question of dutiable goods. Why should 15,000 tons of foreign hops be dumped down here and sold at 25s. per cwt., which is 17s. per quarter less than they can be produced for in Kent? They come in without the payment of one farthing in the shape of duty, and yet were we to try and send hops abroad we are met at once by a prohibitive tariff. For the United States, £2 16s. per cwt.; Russia, £1 14s. 6d.; France, 12s. 6d.; Germany, 10s. 6d. We really are so humble and good, we never retaliate. That all the hops that come in are of first-rate quality is not likely; indeed, we should fear that under the name "hop" is much that is little better than rubbish. There is both insult and injury here. A robbery of the grower of English material, and a damage to the stomach of the consumer of the beer.

There are plenty of people who strongly object to the idea of any tax on imported wheat or flour. "Let all come in free," they say, "lest our people suffer from lack of food. We cannot produce corn in sufficiency for our wants, and therefore we must depend on foreign supplies." It does not make one bit of difference that the English farmer has been hit hard by this unfair competition. The people must have cheap food, and the labourer must be thrown out of employment, for he is not now wanted. Hard as the case is, there may be a little germ of truth in the idea of untaxed food, for without food, without bread, "the staff of life," where should we be? But the same reasoning cannot, and should not apply to hops. Whatever people may say, beer is a luxury, not a necessity. Very many of us manage to get through fairly long lives without tasting beer, and we put in as many, or rather perhaps more, hours of good work than those who take their beer. Beer is not the stand-by of the young, the aged, and the helpless; and therefore we cannot see why anyone with the smallest sense of propriety can object to a duty on imported hops. If people want beer, let them have it of the best, pay for it in accordance, and keep at home an industry that goes to support an immense number of working people. Of course, the passing of a Pure Beer Bill would be of immense value; but when will the

Government find time to pass such a measure? Certainly just at present they have irons enough in the fire. The only remedy just at hand would be the immediate imposition of a duty of 40s. per cwt. on all foreign hops, whatever their quality.

There is a committee at present considering the state of the hop industry, but we recall to mind the end of many other committees: much talk, and little of it productive of good. Talk is all right as far as it goes, but action is more to the point. We fear that matters have been allowed to slide, and that remedies are only spoken of when the patient is beyond the reach of remedies. However, we shall see what we shall see, given time enough.

The Rat Plague.

There has been for some years past an outcry, more or less unheeded, as to the abnormal increase of rats. Why there has been this increase is rather difficult to say. Of course, there is some truth in the statement that other vermin which preyed on the rat have been more or less exterminated. Possibly, too, each individual member of the community has failed in individual effort. Again, too, the effort may have been spasmodic, rather than well directed and universal. Certainly the rat, being persecuted in one parish, will make for the next, and as rats breed quickly will soon populate a large area. Whether, too, the fact that last year was so excessively wet that the field rats have been driven out of the low lands to dryer snugger quarters has had anything to do with the present plague, we are not in a position to say. We remember in 1878-9—those wet cold years—rats were terribly abundant in the homesteads, and it was thought then, by those who considered they knew, that we were entertaining many field and drain visitors. We see that the Board of Agriculture is issuing a leaflet recommending methods of destruction; but it is also certain that to do any real good the action taken must be united and simultaneous. It is rather like the case of the wood pigeon raids that were the fashion in the spring of a few years back. Some good was done; the birds got a check, but it did not last for long, and there is still plenty, and more than plenty, of sport for the ardent gunner during the greater part of the summer.

Bad as the wood pigeon is, he at any rate can be converted into "pie"; but the rat is a most unmitigated nuisance, and deserves no quarter. We have heard, of course, of the new rat destroyer, a virus that deals death to the rat, but is absolutely safe in the case of other animals, save such as are living on milk, as young calves. The use of such a remedy is to us rather like playing with edged tools, and we shall wait to learn more of the results before we venture to try any such experiments ourselves.

Work on the Home Farm.

The weather needs no remark this week, but it has been so universally bad everywhere, both before and after Easter, that anything like satisfactory farm work has been impossible. None but the very oldest inhabitants can remember such an April.

The great Spring fair at Lincoln will be drawing farmers from all parts. We are glad to hear that the demand for all descriptions of horses has been very keen, and prices high. The Spring sales had provided a sure forecast of a successful horse fair. The weather may have a bad effect on the values of store cattle and sheep; yet wet cold is better than dry cold, and warmth only is required to provide abundant pastures.

It is necessary to postpone mangold drilling, but the manure may be spread between the ridges, and when the weather is better, splitting in and drilling the seed can be quickly done. We should, in a season like this, prefer mangolds on ridges to those drilled on the flat.

We have kept the horses at work clearing manure from the yards into the swede fields, and it is now all in hill, ready to put on when wanted. Where the land is clean enough it might be ridged ready for manuring, but we should not spread the manure until sowing time. Ridging up would expose the soil to greater sun influence; that is, if we are to have any sunshine in May.

Hand tillages for roots might be safely drilled or sown now, on clean land, although the seed may not be drilled for some time. If it is sown before the land is ridged up, it will be more effectually incorporated with the soil than if it be sown after the ridging or drilled on the flat.

Where much barley is grown we recommend a mixture of bonemeal and superphosphate for root crops, as we believe it to be the best for producing quality of barley, and good crops of seeds afterwards.

We have been much harassed about our cattle. The yards being cleared of manure provided little comfort in such wintry weather, but covered yards have been utilised as far as possible. Some beasts which had been out a fortnight have now been brought up for several nights.

Sheep have caused little anxiety; lambs are all strong, and although the bite is a near one, there is plenty of clover plant, and grass is quite an average for April.

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Journal of Horticulture.

THURSDAY, MAY 7, 1908.

The Cut-flower Garden.

AMONG the multitudinous changes of the last twenty or thirty years must be reckoned one that is good in every way, and that is the increasing love of flowers. Though I am thoroughly in harmony with this spirit of the age, I can always feel sympathy for the gardener who is annoyed, or grieved, according to his temperament, by the cutting of flowers in somewhat wholesale fashion from the beds and borders upon which he has lavished much thought, time, and care in order to make as fine a display as possible.

Those who simply reap the fruits do not know or realise how the gardener's mind gets set upon the spectacular effect of his arranging, planting, and subsequent tending. The modern fashion of arranging flowers, too, which demands that only two, or at most three varieties, should be put together, instead of the old-fashioned way of putting a dozen or more different kinds of flowers in the same receptacle, increases the effect which a raid upon the garden may make, however carefully it may be done, the result of picking a basket of flowers entirely from a bed or patch of one thing being obviously more apparent than that of the same quantity picked from a dozen different places. It is because of this, in part, that it occurred to me to write these few notes upon a subject by no means new, and that is, the advisability of having a part of the garden set apart for the growing of flowers for cutting. By this means we can cut as many as we want of one variety without compunction. Or certain plants can be grown together on account of their short duration, bad habit of growth, season of flowering, want of harmony with their neighbours, or other defect, as not being suitable for the more formal parts of the garden.

For instance, a bed of Christmas or Lenten Roses, beautiful though they are for house decoration at a season when flowers are scarce, is not suitable for the flower garden proper, as

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No. 1451.—Vol. LVI. THIRD SERIES.

these are only in bloom at a time when we spend little or no time in the garden. Many annuals, too, which are so much prized for table decoration, such as Love-in-a-Mist, Cornflowers, Eschscholtzias (a beautiful trio), Shirley Poppies, Larkspurs, &c., are not suitable, for the reason that they become untidy in late July, and leave big gaps in August. Moreover, it is difficult to grow annuals to anything like perfection within reach of the roots of shrubs or greedy hardy perennials, and the same applies to a good many of the choicer perennials. Many of the hardiest perennials, too, though giving a good effect in a mixed border when grown in great masses, do not produce such fine blossoms there as small clumps planted in fresh ground. Of course, this does not apply to those which do not stand moving well, on account of their deep-rooting character, the brittleness of their roots, or other characteristics which make them bad subjects to transplant, of which Japanese Anemones, Gypsophila paniculata, Hellebores, Sea Hollies, Sea Lavenders, Potentillas, Delphiniums, and many others might be quoted as instances. Many, however, which form masses of roots near the surface do better if frequently moved, while small young pieces from the old clumps often give very fine flowers the first year. This is true of Sunflowers, Michaelmas Daisies, Achillea ptarmica, tall Phloxes, and Chrysanthemum maximum.

In making suggestions for the growing of flowers for cutting apart from the formal flower garden, it would perhaps be as well to divide the subject into three parts—bulbs, hardy perennials, and annuals. But something must first be said about the situation of this cut-flower garden. One may give up odd portions of the kitchen garden more or less permanently to hardy perennials, as, for instance, along the margins of the vegetable quarters, the borders in front of espalier fruit trees, &c., and such places may be used for plants which do not stand moving well, but this is not my idea in these notes, which is to use a border, or a small portion (relatively) of the kitchen garden every year for the purpose of growing flowers for cutting, taking a different piece of the garden, either wholly or in part, every year. This ground being as a rule deeply dug and well manured, and the soil being quite fresh to them, it is surprising what fine flowers one may grow in this way, and what a deal of material for cutting a small piece of ground will produce. If the plot of ground, of which a portion is taken for this purpose, is very wide, the best plan will be to make narrow beds, say 4 ft in width, like Asparagus beds, with alleys between, so that we can walk amongst them in comfort for the purpose of tending, and cutting, and generally enjoying the flowers. There are so many beautiful things one would like to grow that few of us can give space to more than a small selection of them, especially when growing a fair number of one sort, as this method implies.

First, as regards hardy perennials proper. It is not necessary to buy a dozen of a sort, or even a half-dozen. If one is economically inclined, two or three plants of some varieties put in rich vegetable garden soil, as suggested above, can, after a season's growth, be made into a dozen plants, or even more. If suitable pieces are taken in October, or even in March or April, and properly attended to, it is surprising what an amount of blossom may be obtained the first year. Some will do still better the second year, after which they should be taken up, in October or early November by preference in most cases, the clumps carefully divided where they have become unduly large, and replanted in fresh ground. Then as regards bulbs, which means mainly Narcissi, as these do not like fresh manure, vegetable ground from which a crop has just been taken is just the place for them, especially if it can be given a dressing of basic slag, bonemeal, or superphosphate. They give wonderfully good results in this way, and increase enormously. This system permits of planting the bulbs in early September, which is not usually possible in the flower garden. I suggest two methods for growing Narcissi in this connection—either giving up a certain piece of ground entirely to them from September to June, and then taking them up and storing them in time to leave the ground available for Turnips, Celery, &c.; or planting the bulbs in rows between the perennials. The space occupied by the bulbs will be grown over in summer, the bulbs either being taken up or left for a second season if the perennials are also going to be left a second season. Inter-cropping agrees very well with many things, and it would seem that the growing together of two classes of plants quite dissimilar in their nature is a good plan. Some Lilies do very well in rich garden soil where the natural soil is specially suited to them, and in such cases the sorts that are adapted may well be grown in the cut-flower garden, though they should be left at least three years without disturbance. I have seen plantations of Tiger Lilies grown in this way, the bulbs being obtained from the bulbils produced in the axils of the leaves, and sowing themselves about the garden. *Lilium candidum* is

very suitable for this purpose where free from the disease, as it increases rapidly and does well the second season after planting, if this is done in August.

Finally, as regards annuals, this is the only way of growing many of the non-bedding kinds to perfection, the worst place to put them being the mixed border. By the term "non-bedding" annuals, I mean the exclusion of annuals sometimes used for bedding, such as Asters, Stocks, Zinnias, and the like. Annuals are best grown quite by themselves, without bulbs between, as they are put in at such various times. If they are sown in the autumn or late summer, either where they are to bloom, or in pots to be planted out in the early spring, we may get very fine displays of Love-in-a-Mist, Eschscholtzias, Larkspurs, Scabious, Iceland Poppies (treated as annuals), Coreopsis, Sweet Rocket, Sweet Sultan, Shirley Poppies (always sown where they are to bloom), Sweet Peas, Cornflowers, &c. And as they will come into bloom in many cases by the end of May or beginning of June, they will furnish an abundant supply of cut flowers at a time when the bulbs and the perennials are not helping us much, and they will be over for the most part by the middle or end of July, when the ground can be cleared and devoted to vegetables—Turnips, Celery, winter Onions, Lettuce, &c. Having only limited space, this is the method I usually adopt where practicable, and it happens that those annuals which stand the winter are some of the best which can be grown for cutting purposes. Annuals which can only be sown in the spring will give as good results in their way, and where slugs are very troublesome many hardy annuals must be similarly treated. If the slugs clear off a bed of anything which has been sown in the autumn, it is only necessary, supposing the ground to have been properly prepared, to give it a good hoeing as soon as it is dry enough in the spring, with a dressing of soot in addition, to make it a good seed bed for spring-sown annuals.—A. P.

The time for summer bedding draws rapidly near. All beds should be prepared two or three weeks before required for planting. Beds that were thoroughly dug or trenched and manured in the autumn will not require much in the way of preparation. An application of

Summer Bedding.

soot and lime, together with a light digging, will be all that is necessary. Summer bedding may be divided into three classes, viz., half-hardy, sub-tropical, and carpet bedding. Half-hardy bedding is confined to the more common plants, such as Pelargoniums, Calceolarias, Fuchsias, Lobelias, Marguerites, Petunias. The introduction of the Pelargonium Paul Crampel has done much to brighten beds and gardens generally. The trusses are larger, and the colour more pronounced than in the old-fashioned Jacoby. Beds devoted solely to Paul Crampel are very effective. If an edging is desired, the golden-leaved Mrs. Pollock comes in useful. A good combination for a large, early-flowering bed can be obtained by using white and yellow Marguerites, and dotting at intervals plants of medium-growing Delphiniums, such as *D. formosum* and *D. azureum*. Beds of the double-flowered common Larkspur (*Delphinium Ajacis*) are much admired. *Coleus Verschaffelti* looks well in masses. Many persons prefer beds composed of one subject, with suitable edging, to beds containing a heterogeneous jumble of plants. *Kochia scoparia* is splendid for small beds in an isolated position. Varieties of ornamental Beet and Mangolds make a fine contrast to Centaureas and other white-foliaged plants.

The arrangement and selection of plants for beds depends a great deal upon the background. Thus, at Hampton Court, a bolder system could be adopted than at, say Kew. One bed, last summer, at the former place deserves special mention. It was composed of the new double pink Begonia, Major Hope, with white Alyssum intermixed—A. macrocarpum probably. Of late years sub-tropical bedding has gained in favour at the expense of half-hardy and carpet beds. Aloes, Cannas, various palms, Aralias (Fatsias), bamboos, and many others are drafted from the houses for this purpose. The larger plants are let into the bed with pot or tub intact; great care in watering is necessary. Each specimen requires individual attention, and a reckless use of the hose is destructive. Any neglect in this way will soon cause the best of the beds to assume a yellow, sickly appearance. Large plants of *Humea elegans*, *Iresine*, help to relieve the heavy, green bearing of sub-tropical beds.

Probably no beds give more pleasure to the general public than carpet beds. These still hold their own in our best parks, especially in the North, although rejected by the majority of private gardeners because of the labour they entail. Combinations of *Alternantheras*, *Sedums*, *Veronicas*, *Sempervivums*, *Pyrethrums*, and *Mesembryanthemums*, planted in a design, suitable for the situation, are most effective. In my opinion the delight given to the public more than compensates the gardener for any extra trouble involved. Succulent beds containing Agaves, Aloes, Cacti, &c., are also much appreciated, although, perhaps, not by the men who arrange them.—C. H.



Cypripedium bellatulum, Exhlm's variety.

This, the finest dark variety of *Cypripedium bellatulum*, was exhibited before the Royal Horticultural Society on April 14 by Mr. J. Forster Aloock, Northchurch. It is of the usual size and style, with thick, waxy petals, but is thickly spotted with purple-lake over the creamy ground. It received a first-class certificate.

Lycastes.

This genus embraces several species remarkable for their floriferousness and easy culture. They are strongly recommended to the beginner, for they are truly amateurs' orchids. In many large collections *Lycastes* are held in high esteem, being grown in quantity either for cutting or for specimen plants for the conservatory when in bloom. The popular *L. Skinneri* is the one usually chosen, of which there are numerous varieties, including such rich dark forms as the new *Orien*, and intermediate shades to pure white. Thus we can, by judicious selection, possess a small group containing plants all slightly different in colour. Other species equally useful are *L. s aromatica* and *cruenta*, both free flowering, and very similar in general appearance. The former is delightfully fragrant, and blooms during the winter months. *L. s lasioglossa*, *Deppei*, and *plana* complete the list of the showiest species; but for quaintness *L. s gigantea*, *Locusta*, and the rare *Dyeriana* may be mentioned. The latter absolutely refuses to grow in any other way than suspended with its leaves pointing downwards, like the well-known *Cattleya citrina*. *Lycastes* enjoy cool intermediate treatment throughout the year, although *L. Skinneri* is quite at home among the *Odontoglossums*, if placed in the warmest position that the cool house affords.

The flowering season for the majority is now over, and the necessary repotting can be carried out. This is required about every second year, and excepting where a plant fails to take to the compost freely, re-surfacing or top-dressing is not advisable. Ordinary flower pots prove the best receptacles, because of the numerous fleshy roots which need plenty of pot room. They delight in a mixture of fibry loam, peat, and chopped sphagnum in equal parts. The compost ought to be free and open, and to assist in this direction a sprinkling of broken charcoal or crocks may be added, while the pots should be filled one-fourth of their depth with drainage. During the active season ample water must be given to enable them to build up large pseudo-bulbs; but the watering ought to be less frequent immediately after disturbance at the base and when the growth is finished. This, however, can be overdone; but providing the bulbs do not shrivel no harm will accrue.

Anguloas.

These are suitable companions to the genus named above, and need almost identical treatment, especially regarding temperature, soil, and the method of repotting. They will withstand longer periods of drought when at rest than *Lycastes*; in fact, the moisture in the air is nearly sufficient through the dull months of the year; but directly growth begins the water supply should gradually increase. The flower scapes appear with the new shoot, and after these are removed the repotting takes place. *Anguloas Ruckeri*, *eburnea*, and *Clowesi* form a trio of the best in cultivation.

Ada aurantiaca.

A bright, showy, cool-house subject, deserving of wider recognition. Some varieties open their flowers more than others, but even if such are not procurable the ordinary kind always proves attractive, and makes a pleasing contrast among other orchids. They thrive in a mixture as advised for *Odonto's*, and can be grown under the same roof.—T. ANSTISS.

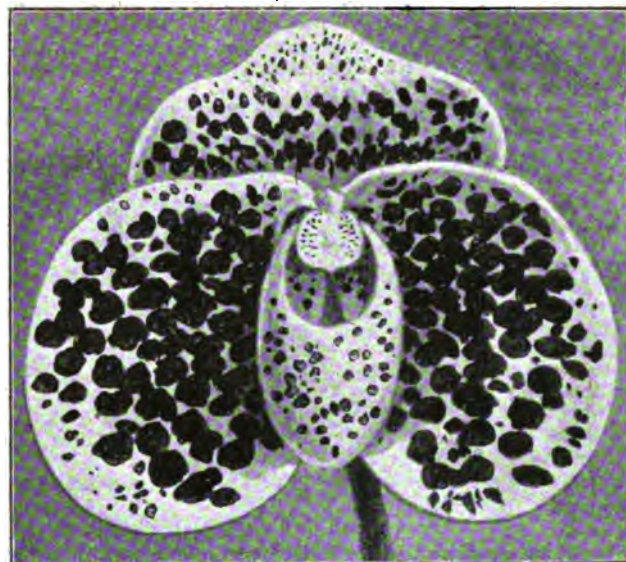
Oncidium sphecelatum.

This old and half forgotten orchid produces long stiff stems of yellow flowers that last well in good condition for quite a long time. It is of the easiest culture, and the plants grow in an ordinary greenhouse. It likes plenty of moisture while growing, but a good rest after the bulbs are complete is necessary. *O. altissimum* is a similar plant, and the two are sometimes confused, though quite distinct.

Auriculas.

Cross Fertilisation and Seed Raising.

Auricula fanciers only cross those which are thrum-eyed, i.e., those having the anthers at the top of the tube and head of the stigma below. Pin-eyed flowers are disqualified by florists' rule, i.e., those having the stigma among or above the anthers. This is artificial crossing, and distinct from the natural crossing by bees or other insects. The Auricula is like the Primrose, which Prof. Darwin has so well described in his paper on the structure of the Cowslip and Primrose. "If a number of Primroses (or Auriculas) are examined in their natural state, about half would be found to have the stigma at the top of the tube, and the anthers or stamens half way down; while in the other half the stamens are at the top and the stigma half way down." It cost Darwin years of patient labour to explain the significance of this curious difference, but when once pointed out it is sufficiently obvious. "An insect thrusting its proboscis down a Primrose of the long-styled form would dust it with pollen at a point which, when it visited a short-styled flower, would come just opposite the head of the



Cypripedium bellatulum, Exhlm's variety.

stigma or pistil, and could not fail to deposit some of the pollen it took from the anthers of the first flower on the stigma of the second. Conversely, an insect visiting a short-styled flower would dust its proboscis at a point farther from the top, which, when the insect subsequently visited a long-styled flower, would again come just opposite to the head of the pistil." This is natural cross fertilisation without method or design.

Florists' Auriculas have been so long crossed for reduction of stigma that comparatively few from good strains revert to the long-styled form; we do get them, but no matter how pretty or otherwise perfect, fanciers weed them out ruthlessly. Good strains like we have now have a lineage almost ancestral; many of our good old sorts are from fifty to 100 years old, i.e., from the date they were first raised, and although thousands of seedlings are raised annually, they have never yet been beaten, viz., George Lightbody and Acme.

This is the most interesting portion of the hobby. The plants when in bloom are selected; the seed-bearer being chosen for form and robustness of growth; the pollen-bearer for colour, &c. The anthers of the seed-bearer are removed, and the pollen of the variety selected for crossing is transferred to the stigma of the seed-bearer, either direct or by means of a fine camel-hair brush. This is better done on a dry, warm day. The seed pod ripens naturally about August, and the seed is threshed and usually sown the following spring, two years elapsing before the seedlings bloom. Those exhibiting qualities equal to already existing named varieties are grown on, and in process of time appear for competition at the exhibition held annually either in London, Manchester, or Birmingham.

ham, with the view of becoming certificated varieties themselves.

Properties of the Flower

FORM.—The petals forming the flower should be flat, smooth, and circular edged, not notched or serrated. *Edges:* The colours should be correct: white, densely white; green, intensely green; grey, pure grey; selfs, a uniform self-bright colour. The bands of colour in the edged classes should be uniformly of the width of the edge and tube; the tube a pure rich yellow, and the white band of a similar width to the body colour, giving a well-balanced flower.

ALPINES.—The gold centres must be pure gold, not whitish yellow; the white centres, pure white, not yellowish white; the shading from body colour to edge must be distinct, and in all varieties the anthers must occupy the mouth of the tube, the stigma being below.

CROSSING.—The green edges should be crossed with greens, as also whites to whites, greys come between, selfs to selfs, as distinctness in every class is the florists' desiderata. As some of the edged varieties do not open easily in the spring, a little heat is usually given to keep frost out, and obtaining an equable temperature of 35deg to 40deg Fahrenheit at night. For my knowledge of the plant and its culture, I am indebted to Mr. James Douglas, F.R.H.S., of Edenside Nurseries, Great Bookham, Surrey, perhaps the most successful trade grower of the century, and to Mr. J. J. Keen, the successful amateur, of Southampton.

Mr. James Douglas in the "Gardeners' Chronicle," December 14, 1907, gives the following list as the best extant to-day. The best varieties now in the four classes are:—

Green-edged, Abbé Liszt, Abraham Barker, Dr. Hardy, James Hannaford, Mrs. Henwood, Rev. F. D. Horner, and Shirley Hibberd.

Grey-edged, Amy Robsart, George Rudd, George Lightbody, Mabel, Marmion, Olympus, and Richard Headly.

White-edged, Acme, Conservative, Frank Simonite, Heather Bell, Mrs. Dodwell, Rachael, and Wild Swan.

Selfs, Black Bess, Favourite, Gerald, Mikado, Mrs. Phillips, Mrs. Potts, and Miss Barnett.

The following twelve alpine, the selection of Mr. J. J. Keen, of Southampton, possibly represent the best and most readily obtainable varieties for exhibition at this date:—Teviotdale, Rosy Morn, Argus, Duke of York, Winifred, Firefly, J. F. Kew, Mrs. Martin Smith, Thetis, Urania, Evelyn Phillips, Mrs. Gorton.

In conclusion, as Sir John Lubbock says in his book, "The Beauties of Nature," "All those who love Nature, she loves in return, and will richly reward, not perhaps with the good things as they are commonly called, but with the best things of this world; not with money or titles, horses and carriages (and we might add motor-cars), but with bright and happy thoughts, contentment, and peace of mind."

Wordsworth again tells us that, "Nature never did betray the heart that loved her; 'tis her privilege, through all the years of this our life, to lead from joy to joy; for she can so inform the mind that is within us, so impress with quietness and beauty, and so feed with lofty thoughts, that neither evil tongues, rash judgments, nor the sneers of selfish men, nor greetings where no kindness is, nor all the dreary intercourse of daily life, shall ere prevail against us, or disturb our cheerful faith that all which we behold is full of blessing."

"If any one," says Seneca, "gave you a few acres, you would say that you had received a benefit; can you deny that the boundless extent of the earth is a benefit? If a house were given you, bright with marble, its roof beautifully painted with colours and gilding, you would call it no small benefit. God has built for you a mansion that fears no fire or rain, covered with a roof which glitters in one fashion by day, and in another by night. Whence comes the breath we draw; the light by which you perform the actions of your life? the blood by which your life is maintained? the meat by which your hunger is appeased? The true God has planted, not a few oxen, but all the herd on their pastures throughout the world, and furnished food to all the flocks. He has ordained the alternations of summer and winter. He has invented so many arts and varieties of voice, so many notes to make music. We have implanted in us the seeds of all ages, of all arts; and God our Master brings forth intellects from obscurity."

These are the words of a philosopher born in the year 4 B.C., whom some would term a heathen, but they are as true to-day as when they were first written, and breathe the true spirit that should give us emulation and honest rivalry in our culture of Nature's gems, which is the work of our horticultural society. By a careful study of any particular flower, we become less like Peter Bell, to whom,

"A primrose by a river brim
A yellow primrose was to him,
And it was nothing more."

—FRED. T. POULSON, Stafford.

NOTES & NOTICES

The Royal Horticultural Society.

The next exhibition of fruit and flowers, &c., will take place on May 12 at Vincent Square. A lecture will be given at three o'clock on "Gardening in the West Highlands," by Mr. Osgood H. Mackenzie.

Appointment.

Mr. R. Findlay, for the past three years head gardener to Mrs. Watson Kennedy, Wiveton Hall, Cley, Norfolk, as gardener to Kenneth McDouall, Esq., of Logan, Stranraer, N.B., entering his duties on May 28.

Royal Gardeners' Orphan Fund.

We would again remind our readers of the Coming-of-age festival dinner in aid of the Royal Gardeners' Orphan Fund, which will be held next Tuesday evening, May 12, at the Hotel Cecil, Strand, W.C., under the presidency of the Duke of Bedford, K.G. Applications may be made to the secretary, Mr. Brian Wynne, 30, Wellington Street, Strand, London.

Mr. Wm. Robinson.

Mr. Wm. Robinson, the famous English authority on landscape and wild gardening, in reply to a friend who sent him clippings from the "Washington Star," sends a long and interesting letter in his own unique style, condemning, as he always does, the formal and unnatural in gardening and the "butcher gardening," as the above paper styles it.—("American Florist.")

Huntingdonshire Daffodil and Spring Flower Show.

The third annual exhibition of this society was held on April 21 at Huntingdon on this date, and the show was again a success. Many fine non-competitive exhibits were staged by nursery firms who make a specialty of the Narcissi. The quality of the flowers in the amateur classes was, considering the unfavourable weather of the past season, very good. Lady Lilford was the winner of the cup offered by Messrs. Barr and Son, King Street, Covent Garden, London, this making the second time she has won the trophy. Other prize-winners included H. R. Darlington, Esq., Mrs. Howell Ustick, Miss L. L. Linton, and Lady de Ramsey.

Prize Money Dispute.

A contemporary reports that the Leeds Paxton Society were recently sued by an exhibitor at one of their shows for the sum of £3 ls. 6d., being the amount of prize-money which had been awarded to him at the show for an exhibit of Cauliflowers, but which the society withheld on the ground that the exhibit had been disqualified on the ground that the produce shown had not been grown by the plaintiff. A clause in the rules of the society was that if any matters arise not dealt with in these rules the committee have full power to deal with same, their decision to be final. Counsel for the defence raised a legal point, urging that this rule put the case outside his honour's jurisdiction. The plaintiff had had his trial—before the committee. His honour upheld the objection, and a verdict was given for the defendants.

Sussex Weather.

The total rainfall at Franklyn Road, Haywards Heath, for the past month was 2.29in, being 0.52in above the average. The heaviest fall was 0.59in on the 28th. Rain or snow fell on twelve days. The maximum temperature was 66deg on the 29th; the minimum 29deg on the 21st; mean maximum 53.17deg; mean minimum 34.15deg; mean temperature 44.66deg, which is 3.01deg below the normal for the month. Sussex has not been exempt from the extraordinary weather experienced all over the country. Up to the 20th it was extremely dry, with cold, northerly winds. For some days after a succession of snow showers followed. At midday on the 26th, the children were indulging in the unusual game of snow-balling. Fortunately, the frost was not severe, and the effect on the fruit trees (which are extremely late) remains to be seen.—R. I.

Schedule of the Franco-British Exhibition Flower Show.

The schedule of competitive classes for the "grand exhibition of plants and flowers," to be held at the Franco-British Exhibition, Shepherd's Bush, London, W., on May 19 and 20, has been published. The dates are exactly one week in advance of those of the Temple Show, though June 2 was originally fixed. The schedule contains twenty-one classes, six of which are open, nine are confined to amateurs, and six are for "French and British" competitors. The first nine classes are decorative, that is, for table decorations and floral displays; the remainder are for groups, including alpinists, orchids, Roses, Carnations, and ornamental plants. The prizes are mainly £3, £2, and £1 for first, second, and third respectively. Applications should be made to the Horticultural Secretary, Mr. J. A. Alexander, Exhibition Offices, Shepherd's Bush, London, W.

"Roses in Pots."

The ninth revised edition of the late Mr. Wm. Paul's "Roses in Pots" is to hand. No better exemplars of this system of cultivation exist than the Waltham Cross firm, and a little work of this nature, costing a florin (2s.), post free, must meet a steady demand. Roses are popular indoors and outdoors, and in the near future, more than in the past, the gardener will be expected to keep up the early Spring supply of cut Roses, or Rose plants in flower. To do this well is quite as exacting as to produce a good crop of Grapes. The "Autobiography of a Pot Rose," which forms a section of this handbook, is at once deeply alluring and amusing. We commend the book in words that we have used before—"In the ninety-one pages will be found every direction that can possibly be required." It lies with the grower by his care and judgment, following the rules here laid down, to make Roses in pots a full success.

Gardener's Golden Wedding.

At Smeaton Hepburn, East Lothian, N.B., on April 30, Mr. and Mrs. Black celebrated their golden wedding, when they were the recipients of a number of valuable presents, amongst which were a handsome gold watch to Mr. Black from Sir Archibald Buchan Hepburn, accompanied by a gold Albert from Lady Hepburn. Sir Archibald and Lady Hepburn jointly presented Mrs. Black with a valuable brooch. The Dowager Lady Hepburn sent them sugar tongs and spoons; and Captain Milne Home sent a gold pencil case; while their fellow servants on the estate presented Mr. Black with a handsome easy chair, and Mrs. Black with a down quilt. Many other presents were made by their family and numerous friends. Mr. Black has been long known in the East of Scotland as an intelligent and accomplished gardener who has always been abreast of the times as a successful cultivator, having had collections of orchids and other choice plants when these were not so common as now. It is rather a happy coincidence that the golden wedding of the aged couple takes place in the same year as Mr. Black will complete (if spared till November next) fifty years' service as gardener at Smeaton.—T. M. E.

"Journal of the Board of Agriculture."

The fifteenth volume of the "Journal of the Board of Agriculture" begins with the issue for April, 1908, and arrangements have been made for the introduction of several new features. In the first place, the size is increased from sixty-four pages to eighty pages. The additional space will be filled with a monthly article on the course of trade in agricultural produce during the past month, and a comment on the tables of prices that are printed at the end of each number. An attempt will also be made to print from time to time reports on the condition of crops abroad, especially on the Continent, and on the trade in those articles of agricultural produce which compete with home-grown produce. In the April number two other series of articles are begun, the first on weeds, fungi, and agricultural pests, illustrated each month with a coloured plate, the other on the agriculture of small holdings, showing what methods have been adopted by those who have been successful, with suggestions for those who are about to take up new holdings. As it is intended that these articles shall be of service to all classes of agriculturists, the price of the journal will not be raised. We hope to review the April issue more thoroughly in our Home Farm department.

Weather in Perthshire.

Following the severe frost towards the end of the week before last, when 20deg and 18deg were registered in this district on two consecutive nights, there has been a return to the dull, cold, ungenial weather previously experienced. With the exception of the 1st inst., which was pleasantly warm, there has been, and still is, a prevalence of easterly winds. Up till Monday showers, not unwelcome, have fallen daily since Friday, with an occasional gleam of sunshine.—B. D., South Perthshire.

"The Enemies of the Rose."

The National Rose Society has been busy, for in addition to the Annual, which we review on another page, they have published a booklet on Rose enemies. This is one of the society's most ambitious efforts in this direction. The text is by two first-class authorities—to wit, Mr. George Massee, V.M.H., and Mr. Fred. V. Theobald, M.A., the one a renowned mycologist and cryptogamic botanist; the other equally renowned as an entomologist. The booklet, moreover, contains eight page-size coloured plates of insect and caterpillar enemies, drawn by Miss Beard. The life-histories of the different fungoid and insect pests is published, with instructions how they may be kept in check or be destroyed. We congratulate Mr. Mawley, as editor, and the Publications Committee on their excellent production. This handbook can only be obtained by non-members through a member of the N.R.S. at 2s. 6d. each, post free.

April Weather at Desford, Leicester.

The total rainfall of 3.79in for the past month is a heavy one, there having been fourteen days on which rain or snow fell. The greatest quantity was measured on the 29th, when it was 0.60in. The temperature was low, as the prevailing direction of the wind has been northerly. The warmest days were the 9th and 30th, when it was 65deg and 64deg respectively. The lowest was on the 24th, when it was 26deg. The mean temperature for the month was 43.1deg, which is a very low one. The last week was very wet, there having been a fall of rain or snow on seven out of eight days. On the 25th snow fell all through the day, which melted as it touched the earth. During the night it was cooler, and remained on the ground, when there was nearly 6in measured next morning. On the 24th there was a sharp frost, but the covering of snow on all the bushes saved the Gooseberry flowers from any harm. This was the case, too, in respect to the unopened Plum blooms, as now the blossom is out, there does not appear to be any damage done to them. I trust that other districts will have escaped much better than the alarmist reports would lead us to believe is the case.—L. F. D.

International Botanical Congress

The third International Botanical Congress is to be held at Brussels from May 14 to May 22, 1910. Owing to the death of Professor L. Errera, who was appointed joint president of the organising committee held at Vienna in 1905, and also of his successor, Count O. de Kerchove de Dentergem, Baron de Moreau and M. Th. Durand are now the presidents. At the close of 1907 the newly-constituted executive convoked a meeting of the principal Belgian botanists; this meeting, held at Brussels, after an exchange of views, adopted the following among other regulations for the said congress: Membership of the congress shall be conditional upon subscribing to its regulations and a payment of fifteen francs (12s.). Any language may be used in the discussions, but French will be the official language of the congress. Papers on various questions affecting theoretical or applied botany—apart from those specified in the agenda of the special sections—may be submitted to the organising committee, who shall decide as to the discussion of the same and their inclusion in the minutes of the congress. These papers may be written in German, English, Spanish, Flemish, Dutch, French, Italian, or Portuguese; they should, whenever possible, be accompanied by a translation of their summing-up in either German, English, or French. All communications relating to the congress should be addressed as follows: Dr. E. De Wildeman, General Secretary of the Organising Committee, Jardin Botanique de l'Etat, Brussels (Belgium).

Garden Ornaments.

Arbours and Temples.

To obtain the best scenic results in the disposition of the features of a garden, it is necessary that no details should be considered too small or insignificant for consideration. "Everything," as Mr. Mawson says, "within the scope of the garden scheme should be designed or planned with due consideration to its use and fitness, proportion and balance." Some knowledge of architecture, and certainly a due appreciation of the beauty in architecture, must be added to the study of the technique of good gardening and of arboriculture. Too often, within recent years, we fear that the architectural element in garden design and garden adornment has been quite overlooked. A change, however, is taking place, and the formal in garden design is not tabooed so much as it has been. It is beginning to be admitted that there is a place for everything—for the stately walled garden with its terraces and fountains and clipped shrubs to the free grass of wild scenery; from the beauty of symmetry and richness of colour in a carpet-bed, to the untrammelled effulgence of woodland gardening, where everything grows free as it will.

Very much could be said about where and when to introduce arbours, temples, or other similar things. The one here shown



A Temple at Kew.

is tasteful in itself, and its well-planned and well-built frame, simple, yet good, command general admiration. It crowns the summit of a knoll, amid a circle of trees that deck the sides of the slope. It was placed where it is to "heighten a height," and as a feature of ornament to be seen from several various points in the grounds. Such a temple may also be inserted at the termination of a walk, especially where such a walk ends in a *cul de sac*. A temple need not always be chosen; an arbour or seat is quite as appropriate. "Such features allow the designer almost unlimited scope, and, if successful, divert the mind and appear most fitting." Of course, this is not to be read as commending walks that end in a *cul de sac*; for to be compelled to return by the same route is undesirable. Walks of this description should only be made when there are particularly strong reasons for doing so, as to gain some pleasing view or to see some interesting object or objects.

Kew Bulletins.

Two bulletins have recently been issued from the Royal Gardens, Kew. One (appendix iii., 1908), comprises lists of the new garden plants described in the leading botanical and horticultural journals, both English and foreign, during 1907. The plants named in the bulletin are each described. The cost is 2d. through booksellers. The other bulletin is No. 3, 1908, mainly of botanical interest, with, however, an article on Banana cultivation in Egypt, and several useful gardening miscellaneous notes. The price is 3d.

Violets.

The growers of Violets, both outdoors and under glass, have had much to complain of in recent years through spotting and collapse of the leaves, which, for bunching purposes, it is equally important to have in good condition with the flowers. The latter have also been so much spotted and deformed in the petals as to render them worthless. These defects of foliage and bloom have been attributed to fungus infections, though in not a few cases the disaster is so suddenly effected as to give reason for questioning the attribution. In many cases all the plants are affected, therefore select young plants that have the leaves most free from spotting. This, in the case of late planting in the latter part of April or early in May, is not difficult, as the divisions have pushed some young leaves, and it is easy to strip off the old spotted leaves. The young plants will thus be practically free from fungi, and as a further precaution the plants may be dipped the night before planting in a solution of paraffin emulsion and sulphide of potassium, say 2oz emulsion, and 4oz sulphide to a gallon of soft water.

The ground in which the plants are to be grown during the summer should be open and well exposed to the sun, deeply dug, and well enriched with decayed stable or farmyard manure and some leaf mould. The debris from an old hotbed composed of stable manure and leaves is excellent for the purpose. Of course, the ground should be prepared some time in advance of planting, and be forked over in spring, if dug and manured in autumn or winter. To ensure a sturdy growth, the ground should be made rather firm by treading prior to planting, and the surface should be in good tilth. The varieties of Violets may be divided into three sections for cultural, or at least planting purposes:

1. Vigorous growers, such as Admiral Avellan, Frau Hof Gartendirektor, Gloire de Bourg la Reine, Mdle. Bertha Barron, Odoratissima, Princess of Wales, Princess Beatrice, The California, Superba, and Wellsiana. These varieties should not be planted less than 15in apart, and in good soils should be allowed 18in between the rows, and the same distance from plant to plant in the rows. La France must have like distance.

2. Moderate growers:—Devoniensis, The Giant, The Czar, Odorata rubra, White Czar, and the Queen. These, with Russian and Parmaensis fl.-pl., should, for outdoor culture, be placed 12in apart in ordinary soils, and in good soils 15in distance apart in the rows and between rows.

3. Neapolitan or small-foliaged section:—Comte de Brazza, De Parme, Lady H. Campbell, Marie Louise, Mrs. J. J. Astor, and Neapolitan. These should be given a distance of 12in apart every way, and the vigorous growing Mrs. J. J. Astor is all the better for 15in.

The plants (single crowns in each case, and every one furnished with some roots), must be firmly planted, inserting them the same depth as before in the soil or a little deeper, in no case burying the centre or heart deeply, as this may cause its decay, or causes the plant to break into a number of growths of a tufted nature, and that means a plentitude of leaves, paucity of bloom, and much spotting of the foliage. The young plants should be the best of the suckers or divisions the parent plants furnish; and, as a rule, the old crowns should be rejected. Some growers prefer runners. After planting, a watering will generally be necessary to settle the soil about the roots, but this need not be given if the weather is wet or showery. On the other hand, they must not be neglected for watering in case dry weather ensue, a sprinkling overhead being very beneficial.

Successful summer management consists in frequent hoeing, the weeds being eradicated in their seedling state. Continue the occasional watering after planting, until the roots of the plants have taken a good hold of the soil. This will be effected by June, when the plants are much benefited by being mulched with a thin covering of rotten manure, and this should be added to from time to time to the end of July. But in no case should the mulching be more than an inch in depth. As the plants grow, they will form runners freely; these should be cut off as fast as they appear, continuing this through the season, though some growers leave it off about the middle of August. About this time the older leaves of the plants are gradually removed, so that by lifting time in September (early in the month for early flowering, and the others towards the end), the plants have only healthy leaves, and these get the full benefit of light and air. This signifies high elaboration of the juices, firm texture, and concentration of energies in the crown and their flower buds already existing in embryo. If red spider puts in appearance, the plants should be well dusted with a mixture of three parts soot, and two parts in equal proportions of air-

slaked lime and flowers of sulphur, when, the weather being warm, the vapours given off act well on red spider and on fungal germs. This repeated occasionally and supplemented by needful watering in droughty periods, or occasional soakings of liquid manure, will mostly keep the pest in check.

The Neapolitan varieties do not succeed outdoors, except in very favourable localities, though even in the North of England they sometimes flower fairly well in April or later, therefore are grown in pits or frames, which must stand over till the time arrives for transference of the plants to them.—A. E.

Market Gardening Notes.

THE SEASON IN CONNECTION WITH COVENT GARDEN MARKET.

It is generally acknowledged that April has been a bad month for the grower. It is distressing to see the loads of herbaceous stuff, Pansies, Violas, &c., left over day by day; but who could do gardening in the recent weather? Monday, the 29th, did put hope into the heart of many, to be ruthlessly dashed aside by Tuesday's rain. With the season being so very late, quite a month has been lost for the root trade, and the result will be that the bedding stuff being in, much of the other trade is irretrievable.

DUTCH CUT BLOOMS.

Our market is nothing if there are no grumblers. Just now the complaint is the dumping of Dutch flowers. The opinion of the home grower is that while we depend largely on the Dutch bulbs, it should stop at this. The free supplies of Hyacinths, Tulips, &c., really of no quality and not suited for the better class trade, that are sent over, spoil much of our trade. More than one leading salesman has spoken to me on the matter. They suggest that a meeting should be called to boycott the English salesmen who handle these Dutch flowers and load the streets. Why the Holland people send over is a query. I think it is a question the Dutch bulb growers should consider well before another season. [On Saturday last, May 2, 1,800 boxes of Dutch flowers were delivered in Covent Garden Market. At auction they fetched 6d. to 1s. 2d. per box. Carriage is estimated at 6d. per box.]

ROSE TAUSENDSCHÖN FOR EARLY POTS.

This 1907 Rose has very quickly come into favour with the florists. It is a climbing variety of the Rambler class; a very free bloomer. Blooms single, peach colour, with a silvery shade; nothing yet on the market has given such satisfaction. In 40's or even 48's good plants are being grown, trained to two or three stakes from 2ft to 3ft high. Foliage small, but of a very pleasing colour. With the aid of Hamilton's Spider Killer the winter pest, red spider, is being well kept down. Mr. J. Lion, Stanmore, who imported it direct from the Continent last year, is in raptures with it. [Messrs Wm. Paul and Son, Waltham Cross, have been exhibiting it finely.]

RHUBARB, THE SUTTON.

I had a nice parcel of the above sent me from Wisbech. It is very fine, and of good colour, but I was not aware of this being a forcer. At Wisbech I have seen it growing in the open quarters, and have noted it as being good. [Daw's Champion and Hobday's Giant have each recently been well shown.]

PACKING TOMATOES.

While 12lb is the recognised packet, whether in cross-handed basket or in box, a lesser weight is very advisable while prices are high. Recently, Worthing was sending up in 12lb lots, which made 1s. per lb. Had these been truly graded, in half the weight, 1s. 3d. to 1s. 6d. would have been returned for them. Grading is very important, combined with good colour, facts which should be well kept in mind.

THREE CROPS FOR GLASS HOUSES.

Mr. G. W. Miller, Wisbech, adapts his crops well, leaving out the possibility of filling in between while the main crops are growing. Tomatoes are now planted, and these are a very substantial main-paying crop. Chrysanthemums (lifted) of the early varieties, and pots of the late kinds, with bulbs, follow, two sets of these being got in for cut bloom between the two above crops.

MARKET ASPLENIUMS.

For several years the dreaded "mite" has left its mark on the plants (A. bulbiferum) in spite of the many chemical remedies in use. Calling upon Mr. G. Messer, of Edmonton, I was delighted to find a full stock, this being practically the only market fern there grown. The pots are 60's to 32's; a very fine lot of perfectly clean plants. In Covent Garden Market, even with a slow selling season, his are well known, and in addition to the selling for market, he also books up orders.—STEPHEN CASTLE.

Stove and Greenhouse Plants.

Brunfelsia calycina.

Because the Brunfelsias are plants whose flowers cannot well be cut for decorative uses, they are somewhat out of fashion in these days. Here and there we find well-grown plants, and the specimen which we figure would be hard to beat. This plant is growing in a border in the Mexican division of the Temperate House at Kew. A stove temperate, or perhaps a slightly lower average temperature than that for the stove, say warm greenhouse, is maintained; and as the plants are placed out in the border of fibrous loam, they grow freely, and are just kept pruned into shape. They form pyramidal, compact bushes, and during April, May, and June, when covered with their lavender-violet flowers, each as large as a half-crown, they are very effective. The genus was formerly known as Franciscea, and the specific names eximia,



A Well-flowered Brunfelsia.

macrantha, and violacea, are now each referred to Brunfelsia calycina. The Brunfelsias are West Indian and South American plants.

Coleuses.

So easily and cheaply grown and showy a plant as the Coleus should be freely propagated and grown, not only for baskets and window boxes, but for sale all through the summer. Cuttings may be inserted at any time and anywhere, and if kept fairly warm and moist will root very rapidly. Pinch them as soon as rooted; pot the plants in the 2in size, and when feeling the sides of the pots pinch the shoots again and repot into 4in. At each potting use a light soil composed of nearly two-thirds light well-decayed manure and sand, and pot only moderately firm. On a bench in a light, moist house, and kept moist at the roots, the plants will make a very rapid growth, and take on a very bright colour. They may not bring a very high price, but if properly managed they are grown, sold, and out of the way in a couple of months, and this, too, at a time when space is not so valuable inside as it is earlier in the year.

Leucadendron argenteum.

This plant grows in a natural state on Table Mountain, S. Africa. The natives and others paint devices on the leaves, and then sell the latter in Cape Town and various other seaports to visitors. Many seeds and young plants are brought to this country from time to time. I have been very successful

in the cultivation of this plant, and will here give the details briefly, which I found necessary to attend to in order to gain success.

In the first place I would like to draw attention to the roots, which are fibrous and thread-like. The most suitable compost is one of fibrous loam two parts, sandy peat two parts, and broken charcoal mixed with it. The fine soil should be separated from the fibrous part of the loam. The sandy peat should be broken up and the dust-like portion and sand gathered up and mixed with the fibrous loam before the two chief ingredients are mixed together. Every particle of sand will thus mix with and adhere to the loam, and this is very important, as a thoroughly porous soil is essential. The charcoal also should be sifted, the dust being used in a similar way to the sandy peat, and the larger lumps judiciously mixed with the compost at the bottom of the pot. If the peat is not of a sandy nature, washed and dried sand or road-grit should be added at the rate of a 6in potful to a bushel of soil. Thoroughly drained clean pots are essential too; and I would here caution any person against using cracked pots, they nearly always prove fatal to the life of the plants, as the moisture is gradually drained away from the centre of the ball of soil, and then the roots perish.

Pot firmly, and have the compost in a medium state of moisture at the time. Pay particular attention to the watering; if by any means the soil becomes very dry in the pot place the latter in a vessel of tepid water. Surface waterings in such circumstances are quite useless. A greenhouse temperature is the most suitable. Plenty of air should be admitted



Saxifraga ciliata.

throughout the summer and autumn, and also in winter time during mild weather. If a plant has become established in a pot it may with advantage be grown outside during the hottest part of the summer, but it must be well staked and not exposed to strong winds. The plants if healthy will grow to a height of about 4ft, and then produce side branches. If the point of the main stem be damaged side shoots will grow immediately. It is safer not to force the growth by giving strong manures, the plants are better without them. The leaves are blue-green in colour, covered with fine hairs or spines, which glisten in the sunshine like satin cloth.—G. G. B.

An Excellent Megasea (*Saxifraga ciliata*).

The section of Saxifragas that embraces the Megaseas (or *Bergenia* section), the species of which have large and rather fleshy leaves, is well illustrated in the picture above. This is certainly one of the most choice of its kind, and though not so hardy and vigorous, evidently, as *S. ligulata*, *Stracheyi*, or others near akin, it deserves one of the best places that can be accorded. The great difficulty with it is to escape the frosts that are not uncommon in March and April, when it is in its best flowering condition. The protection of a conservatory, or of glass of some sort, is then advisable. The rosy-pink flowers are borne in dense clusters. The leaves are pliable, softer than in *S. ligulata*, *crassifolia*, or most others of the section, and are thinly covered with somewhat silky hairs. These plants appear to succeed almost in any soil, but a good sandy loam is preferred.

Annual Asters.

These lovely subjects should occupy a prominent position in every garden, their beauty in the late summer months being unsurpassed by any other annual. Only those who are closely acquainted with the modern development of this handsome flower can have any idea of its various forms and colours. There are dwarf, medium, and tall varieties in almost endless diversity, and nearly all of them, if grown well, will be a credit to the garden and the gardener. To grow them to perfection they should have a border reserved purposely for them.

The ground should be trenched in the previous autumn with a liberal dressing of well-decayed manure worked into it, leaving it roughly exposed to the winter frosts. Seed may be sown in March. When the seedlings have obtained their third leaf, transplant them to shallow boxes, 2in apart, or in a bed of light soil in a cold frame. During their growing season the ground should be kept clear of weeds and be constantly stirred on the surface with a small border fork. This operation must be done with care, so as not to injure the roots. Water should be copiously used during a dry season; and liquid manure, applied every few days when the flower buds are formed, will be found very beneficial.

To secure exhibition blooms, pinch off all flower buds except three or four on each plant directly they form. Plants grown for this purpose require rather more room. It is also essential to place several small stakes to each plant, tying each bloom out separately, for in the event of heavy rains they will either get broken or be knocked down and splashed.

Asters in pots make excellent plants for the conservatory. Three seedlings can be transplanted into a 3in pot in April, and be grown on till June, when they should be potted in 5in pots, in a compost consisting of equal parts of loam, leaf mould, decayed manure, and sand. Place them in the plant house, and water freely, applying liquid manure once a week when flower buds are formed. Plants may also be lifted from the open ground in August to flower in pots if desired, but they must be lifted carefully with a good ball of soil round the roots, and be potted just before the buds expand, and placed in a frame for a few days, with the light kept shut to prevent wilting.

To secure a long continuous display of flowers there must be several sowings from the beginning of March to the end of May. By this method flowers may be had till the autumn frosts cut them down. For cut flowers the single varieties should be largely grown, as many people prefer the single flowers for table decoration. There are numerous kinds, but want of space only allows me to mention a few. Among these are the *Victoria*, *Plume*, *Comet*, *China*, *Præony-flowered*, and *Chrysanthemum-flowered*.—J. R. G., Chertsey.

The *China Aster* lacks the size of the exhibition forms of *Chrysanthemums*, but in the matter of variation it almost equals these flowers. At any rate, Asters are indispensable half-hardy annuals, and at the autumn season there are no dwarf annuals that are so fresh or brilliant. They are naturally somewhat late flowering, and the flower gardeners depend largely upon them for August and September bedding and border displays. Thousands, too, are grown to be lifted for sale in the public markets, as the plant bears transplanting even when in flower. Indeed, many gardeners find it advantageous to lift the best developed plants and to pot them either singly, or two or three together, for use in the conservatory during the late autumn. At all times the *China Asters* demand generous treatment, and the ground can scarcely be too rich or well prepared. Added to this, they must be supplied with water in dry weather.

It has long been possible to secure reliable strains and named varieties from seeds. This is a great gain to the cultivator. To be able to plant a bed or a mass with one variety, and to be able to depend upon its flowering true to type, is invaluable.

Probably most people will favour the *Ostrich-plume*, the *Empress*, *Comet*, and *Præony-flowered Asters* for decorative uses as cut flowers, for to this they lend themselves. Some of the *Ostrich-plume* and *Giant Comet Asters* are sold by the florists in great quantities, the purchasers very often believing them to be *Chrysanthemums*. The types, though innumerable, are each fairly well marked, and a keen eye can detect the characteristic features of each. They vary in habit of growth, as upright (*Victoria*) or spreading (*Ostrich-plume*); in form and size of flower, being reflexed in the *Victorias* and incurved in the *Præony-flowered*; while, of course, there are *Miniature Crown*, the *Quilled*, and those others already named. The variation, indeed, both in form and colour is wonderful, and our gardens would be much the poorer were *China Asters* to disappear.—M.



The Oriental Plane.

"The oriental Plane is found all over Asia Minor," says Consul Harris, of Smyrna, "but seldom in groves. They usually stand alone along the roadways, and serve the traveller as halfway stations, where he finds some protection from the summer sun and a fountain. These trees also add considerably to the scenery of the country. They grow to be several hundred years old, and often attain such size that shepherds have been known to cut huts in the trunks of the standing trees; and their vitality is so great that they continue to live for years thereafter. The Plane is also a favourite shade tree. Smyrna has none, but Constantinople and the little valleys leading away from the Bosphorus, as well as most cities and villages in the interior, have large numbers of them. The Turks are fond of having them in front of their cafés and in the yards of their mosques."

Silk Fibre Made from Pineapple Leaves.

Vice-Consul J. K. Foster writes from Newcastle that experiments made in Queensland with the leaves of the Pineapple plant have shown that there is a fibre in them which may be used in the production of a useful kind of silky cloth. As to the particulars, he adds: "The fibre experimented upon has simply been obtained by the soaking of the leaves until the outer covering could be easily removed, and the soft, jelly-like substances around the fibre passed away. The fibre, when dried, has been found to be of fine texture and of good staple and strength. Some of it has been exhibited at Rockhampton, and a sample has also been placed in the hands of a firm of ramie dealers and spinners to discover its market value. There is a great demand for all kinds of fibres, and this may be found to be a valuable one. Possibly, there is here the utilisation of a waste product. The leaves of this ground fruit have ever been destroyed as worthless, but if the fibre can be used it will be an additional source of profit to the Pineapple growers. The process of extracting the fibre from the leaves need not be an expensive one, and if some new kind of silky material can be obtained it will produce no small amount of wealth. Pineapple silk may become the fashion. It will be worth while to make further experiments."

Spraying.

The annual loss from the incursions of destructive insects in the United States exceeds by many times the yearly output of all the gold mines in the United States. The reduction in the value of the Apple crop of New York State due to insect injury cannot be less than thirty per cent. one year with another. This is a heavy tax on the fruit grower, yet the injury could be lessened at least fifty per cent. by an expenditure of not exceeding two per cent. on the value of an average Apple crop. The need for spraying is evident. It will probably increase as time goes on. Plants are not cured by medical treatment, like animals. Plants are not made immune to insect or fungus attack by previous treatment. We aim to protect plants by spraying, from two classes of enemies, insects and fungi (plural), fungus (singular). We protect plants. We do not cure them. How are they protected? By covering the foliage with a medium in which the fungus will not grow; in the case of the plant parasite, by poisoning the leaf-eating insect or killing the sucking insect with something which destroys its body. In both cases the principle of forehanded protection is involved. The protective agent should be well in advance of the enemy. Both diseases and destructive insects work rapidly. A delay of a few days may throw the remedy into the "too late" class. Of all the factors making for success in spraying, promptness is most important. Probably more failures result from tardiness than from any other cause.

A Scented Dahlia. ✓

Herr T. C. Schmidt, of Erfurt, has introduced a Dahlia which is characterised by a sweet scent recalling that of honey. The plant originated in Mexico, and is said to be of good habit. Planted out in May, it flowers in July and August, the blooms being of a shade of orange-scarlet, and borne on long stems, thus rendering them very suitable for use as cut flowers. The plant reaches a height of 4ft to 5ft.

Iris, Snow Queen.

This very beautiful beardless Iris ought to be secured by all admirers of these charming flowers, especially by those who appreciate the Siberian Irises, as they are popularly called, the various forms of *I. sibirica*. This is by far the finest of the white forms of *I. sibirica*; and although its introducers, Messrs. Barr and Sons, call it *I. sibirica orientalis* Snow Queen, it is so fine as to lend weight to the surmise that it is a hybrid Iris, having in it some of the "blood" of *I. laevigata*. It is, whatever its descent, a lovely Fleur-de-Lis, with large flowers for a Siberian Iris, and good, broad-falled flowers of a fine ivory white. Although, like the others of its race, it is a lover of moisture, this variety has all the accommodating nature of the species, and will flower well on a dry border, growing, however, less robustly than on a moist one or by the water-side. It is one of the finds of Mr. Peter Barr when in Japan, and does credit to the veteran flower-lover who sent it home.—S. A.

Azalea mollis.

The mollis and Ghent Azaleas are a long suffering race, and come up smiling each year, even after very bad treatment at the hands of growers. It is folly to expect them to do their best if kept about in pots exposed to the sun all summer, and the roots half starved. Where there is a deep black soil, free from lime, these Azaleas may be planted out in as moist a position as possible, and will make a fine healthy growth. Where the soil is unsuitable, the plants, after flowering, should be repotted and plunged outside. They like peat, but will grow in a good loam, and flower buds are often stronger and more numerous from a loam soil than from the peat in which the plants grow so rapidly. In either case, see that the plants are firmly potted, and remove any seedpods that may be left on. Cut the plants into shape a little, and keep the hose going about them freely, to induce a good break. They like a cool, partially shaded position, and the nearer this can be approached in their summer quarters the better.

Heaths.

It is an excellent plan when beginning their culture to form a garden for Heaths and kindred plants, to keep out coarse or strong-growing things which would be likely to rob them of food and moisture. At Kew (says "W. D." in "The Garden") the custom prevails of planting large masses of Heaths; then, as dot plants here and there, rare shrubs are introduced which require light soil and special attention. It is found to be an excellent plan, and several shrubs that are somewhat tender while young have been enticed to grow out of their delicate stage by the protection afforded to the roots and lower parts of the stems by the close-growing Heaths. If space is no object, when the Heath garden is being laid out, it will be found a good plan to form large masses of each section; if, however, space is limited, a more enjoyable feature can be produced by planting a large number of sorts rather than a larger mass of one or two varieties. A particularly pleasing group can be formed of the Mediterranean Heath (*Erica mediterranea*) in several varieties. This, when mature, attains a height of 12ft or 15ft, but it takes a long while to grow to those dimensions. About eight years of age it may usually be found 3ft or 4ft high, and from the age of two years it will have produced its reddish flowers freely. In addition to the type there is a compact dwarf variety called *compacta*, a variety with white flowers, and another with glaucous leaves. The tall and short varieties planted in patches are effective, as they give the group an undulated appearance.



The Snowstorm.

The snow disappeared with wonderful rapidity, and to-day (27th) only a few patches can be seen in the hollows and other positions screened from sunshine. I have just made a close inspection of fruit trees and blossom. After having examined clusters of blossoms taken from numbers of Plum trees, I find about one-third of the individual flowers are ruined, but enough have so far escaped to give a good crop, provided the chill experienced does not cause them to drop later. I have not been able to detect signs of any real injury to the flowers or young fruits on Gooseberry bushes. Black Currants, however, have suffered severely, and many of the flowers have already dropped. Pears are very little damaged, as only a few blossoms have as yet expanded. Altogether the damage done at present is much less serious than one might have expected. The great danger now lies in a continuance of cold, cutting winds, which would so hinder the free circulation of sap as to cause blossom and young fruits to drop after the severe check they have already experienced. The air to-day is pleasantly warm, with sunshine at intervals.—H. D., Warwick, April 27.

Mummy Peas.

Referring to the letter in your issue of the 16th inst., about mummy Peas, I had some given to me about eighteen years ago. They were soaked in warm water before sowing, and germinated well. The plants when grown were about 2ft high; the flower was a small pink one, something like that of the "everlasting" Pea; the seed pod about 1½ in long, containing some three or four seeds. The following year I grew plants from these seeds, and continued to do this for several years from the seed of the year before. There are still four of the original seeds remaining, but how far they were really "mummy" or not, one can never say.

As regards the longevity of seed, I may mention a curious case which came under my personal observation some years ago. On the coast of Durham there is a beautiful "dene," or ravine, some three miles long, going down to the sea. It was thickly covered with trees, many of them being Yews. In the winter of 1879-80 there was a severe snowstorm, one effect of which, owing chiefly to the weight of snow on the Yew trees, was to cause a large landslip in the dene. In the spring the newly-exposed surface of the earth was one mass of Charlock. For how many years had the seeds of this Charlock lain dormant in the soil of that ravine?—A. E. B. H., April 27.

Sheffield Horticultural Society.

In reply to "B. A. W.," as the above society is dead, may I appeal to its late members to allow it to rest. No benefit can arise from discussing its finances. With "B. A. W.'s" other complaint I have nothing to do, but would suggest to him that it would have been more dignified, and more in the interest of good feeling, if he had consulted the secretary instead of rushing into print.—W. LEWENDON.

My previous letter in reply to an article *re* the above was written simply in defence of the committee, who, to say the least, struggled for a long time under most adverse circumstances, only to be told after their various efforts to keep the society alive, that they were found wanting. "B. A. W." accuses me of inaccuracy, but if he will make further inquiries he will find I was an exhibitor long before the time he states. What I said was that only on one occasion in six or seven years had ill-luck not dogged the society's steps; and if "B. A. W." took any active part in raising the last deficit (£100), of which I am doubtful, he knows there is not much inaccuracy in my statement. If he will come from under his *nom de plume* I will give him other interesting facts that he will not find in his "complete set of schedules."

However, my object in replying was not to accuse "B. A. W." or anyone else of its failure, but to endeavour to show that in my opinion it is scarcely fair or just, after years of anxiety in endeavouring to establish the society on a sound footing, to say that its committee were found wanting, that apathy was apparent, or that the gardeners in the district had no "go." It is a pity "B. A. W." did not display such interest in the society's final meeting. Had he done so, perhaps he could have stayed its downfall.

As to any neglect or apathy he may have experienced in connection with the Chrysanthemum Society, he should know

how to get redress, which is not under a *nom de plume*. I have such an opinion of my committee that if "B. A. W." can show that such neglect is mine, they will not hesitate to appoint someone more capable of carrying out their instructions. Every member had posted to him on January 25, the year's fixtures. If "B. A. W." has not received his, I shall be pleased to forward one on receipt of his address; but as I say, seek redress for such neglect in a straightforward manner. May I ask "B. A. W." if he can give us an answer to the subject, "The failure of flower shows" (*vide* "K.'s" letter, page 403). He will do far more good by telling us that than trying to prove to be inaccurate that which he must know to be true, however regrettable.—CHAS. COOK.

Cocoons Wanted.

I am doing some research on the Gooseberry sawfly, but I have great difficulty in obtaining cocoons. I should be very grateful if you would insert a note in your journal to the effect that I want cocoons of this fly. The fly to which I refer is *Nematus Ribesii*.—A. C. TUNSTALL, Zoological Department, The University, Edmund Street, Birmingham.

Mr. Whytock's Address.

While I, in common, I daresay, with the great majority or all of your readers, greatly enjoyed the "Horticultural Retrospect and Outlook" address, by Mr. Whytock, the new president of the Scottish Horticultural Association, printed in recent issues of the *Journal of Horticulture*, there are a few things in it that seem to challenge criticism. On page 332 he speaks in no measured language of "the dirty ragged drabs" (journeymen gardeners) which, he says, "we often see now turning out"—this in comparison with the journeymen of the seventies. He was certain the latter had a far finer appearance, both in physique and dress, than those of the present day. This must be the outcome of the physical degeneracy that is so often preached nowadays. The feminine sex, however, on the whole, is not sharing in the degeneracy so far as length of limb and size of body is concerned; for the girls of to-day appear to be giants beside their mothers. So much good material should certainly not lie idle. They might be encouraged to delve and dig—in small holdings, perhaps. The masculine "ragged drabs" would then either have to retire, or to radically reform. Perhaps it is the half Saturday off, and "the love of sport which dominates him," that has made the journeyman so bad. Everybody ought to work all day on Saturdays, clerks, artisans, and all the rest; and amateur gardening and joyous sports and recreations might be carried on by candle light. But there!—gardeners are gardeners; they are only domestic servants. What other classes enjoy should be no concern of theirs.

Mr. Whytock speaks of sub-tropical gardening as not likely to be successful in Edinburgh; but Mr. McHattie, he must agree, has produced some very fine effects during recent years in the Prince's Street Gardens. Many Scotch gardeners seem afraid to set out a Fuchsia, a Eucalyptus, a Canna, or a well-grown variegated Maize plant, in their summer bedding. Many have never attempted to try whether these would last through a Scottish summer or not. His remarks on hothouse construction are highly seasonable. I agree where he says there has been an enormous improvement in constructing glass houses; but even yet the style of the houses, it seems to me, is not right. We want more like the new fern house in Edinburgh Botanic Garden, where things can be seen and grown something like what they are in their natural habitats.

For many excellent hints in his address, Mr. Whytock deserves thanks, but I didn't like his allusions to the "dirty ragged drabs."—ANGLO-SCOT.

Eighteenth Century Gardening.

Tender Plants.

At the beginning of the century a few enthusiasts cultivated stove and greenhouse plants in such improvised structures as ingenuity could devise. The Duchess of Beaufort was one such, and Bishop Compton another. When we consider that the plant structures were merely shelters erected to evade the rigours of the colder months, and that all plants during summer were turned out of doors, the condition of indoor gardening may partly be conjectured, but hardly realised. The conjunction of circumstances which evolved the vinery, heated by flues in the back wall, and the subsequent Pine-stove which followed in a short time, placed the cultivators of tender plants in a position which, if it had been taken advantage of, would have made them almost on a level with ourselves. It is, however, a curious but unquestionable fact that for a long time the old custom of utilising hothouses during winter alone continued. Gardeners seem to have had no conception of cul-

tivation beyond preserving plants, and huddled them together in the smallest space possible. Miller, who seems to have been a better indoor gardener than a cultivator of choice outdoor flowers, more than once refers in his books to the losses which overtook plants in private gardens owing to the ignorance of gardeners. Bradley was the first to write of these plants, and later Miller, who was the sole authority till Hill's "Eden" appeared in 1757, in which there are short articles on a few tender plants. Abercrombie's "Every Man His Own Gardener" (1767) treats the subject from the gardeners' point of view, and it is remarkable that at this period greenhouse plants—Myrtles, Oleanders, Geraniums, *Solanum capsicastrum*, Tree Wormwood (*Artemisia arborescens*), Indian Bay (*Laurus indica*), Olives, the large Magnolia (*grandiflora*), Candytuft tree (*Iberis sempervirens*), Shrubby Aster (*Aster fruticosus*), Jasmines, Cistuses, double Nasturtiums, Oranges, Lemons, Citrons, Aloes, Sedums, Indian Figs (cactus species), and Pomegranates—were recommended to be placed out of doors in May, and in June the structure was emptied of all plants. In this month other plants are named, and propagation was proceeded with out of doors by the aid of handglasses and hotbed frames. In September and October all plants were returned to the greenhouses.

At this period the custom of expelling frost by means of pots of heated charcoal was not yet extinct. A description, with plates, of a stove in 1771, gives the length 22ft, breadth 5ft, with flues in the back wall and shutters, as aids to keep up the temperature; and coverings of a variety of materials are also recommended. Speechley, a few years later, showed that covering hothouses was more expensive than heating them without the aid of coverings, though he did not condemn those who employed canvas on rollers for this purpose. The glass used, and the glazing, it may be noted, was of the poorest description, and probably covering of some sort in addition to fire-heat would be a necessity. Later, when Cowper sang of the garden, the greenhouses in winter enlivened the chill season with something of beauty. The poet rehearses the charms of the "spiry Myrtle," "the golden boast of Portugal," "the ruddier Oranges, and the paler Lime."

"Th' Amomum* there with intermingling flow'rs
And Cherries, hangs her twigs. Geranium† boasts
Her crimson honours; and the spangled Bean,
Ficoides‡ glitters bright the winter long."

The Azorian and Caffrarian Jessamines are also noted, and plants from the Levant and other regions. Cowper's plants were ranged "plant behind plant aspiring." Miller gave descriptive lists of the best plants for greenhouses and stoves, and among these scarcely any are to be found which are cultivated to-day. For the hottest stove, *Gloriosa superba* is named, also the Sensitive-plant, Vanilla, and Ginger-plant. For the hothouse kept at a lower temperature, many species of *Cereus* are noted, with *Brunsvigia multiflora*, *Amaryllis zeylanica*, "the Bambu Cane," *Calocasia esculenta*; several *Passifloras*, *Gardenia florida*, *Lantanas*, *Musas*, *Dracena Draco*, several palms, *Pancratium zeylanicum*, *Rivina humilis*, *Watsonia*, and a great number of plants since rejected. Of greenhouse plants, apart from Myrtles and Oranges, which were perhaps the most popular of all, the numerous *Pelargoniums* and *Mesembryanthemums*, introduced from the Cape of Good Hope, were the most extensively cultivated. The Ivy-leaved "Geranium" was in England by 1701; *Pelargonium zonale* in 1710; and the Scarlet "Geranium," *P. inquinans*, in 1714. The Rose "Geranium" and a few others had been introduced in the previous century, but along with the above, *P. quercifolium*, still one of the most popular species, and *P. citriodorum* were only introduced in the last year of the century. Of *Cyclamen persicum* two varieties were cultivated. *Diosma capitata* and one or two more species are also worth noting. The Spanish Broom, various *Crassulas*, and *Amaryllis reginae* are also of the number of plants worth mentioning.

It was very much against cultivators of tender plants that the value of turf for potting was as yet undiscovered; and it is not possible to read very far till it becomes patent that in the one matter of compost, and in the methods of potting, plant growers were, even up to the end of the century, very far behind their successors in the next century, who carried plant cultivation to the highest degree of perfection. It is not to be hidden, too, that numbers of gardeners troubled themselves very little about plant growing. Many good gardens had not even the very inefficient means noted above for the production of plants. At the same time, it was necessary to provide plants in pots for house decoration during the summer months; and Hyacinths, Tulips, and Polyanthus Narcissi during spring; and to fill blank spaces in borders, annuals were prepared in pots; but none of these called for anything beyond glazed frames, heated by means of dung; and, on the whole, it cannot truly be said that the eighteenth century was noteworthy for the production of pot plants.—B.

* *Solanum capsicastrum*.† *Geranium inquinans*.‡ *Mesembryanthemum crystallinum*.

Principles of Plant Breeding.*

Only the most limited view of plant-breeding can be given in an ordinary thesis. It would be necessary to extend the subject through many volumes to give even a general view of what has already been demonstrated, and that which the clear light of science has yet to bring forth from the depths is too extensive even for the imagination to grasp, except through a full knowledge of what practical field-work has already accomplished.

The fundamental principles of plant-breeding are simple, and may be stated in few words; the practical application of these principles demands the highest and most refined efforts of which the mind of man is capable, and no line of mental effort promises more for the elevation, advancement, prosperity, and happiness of the whole human race. Every plant, animal, and planet occupies its place in the order of Nature by the action of two forces—the inherent constitutional life-force with all its acquired habits, the sum of which is heredity; and the numerous complicated external forces or environment. To guide the interaction of these two forces, both of which are only different expressions of the one eternal force, is, and must be, the sole object of the breeder, whether of plants or animals. When we look about us on the plants inhabiting the earth with ourselves, and watch any species day by day, we are unable to see any change in some of them. During a lifetime, and in some cases perhaps including the full breadth of human history, no remarkable change seems to have occurred. And yet there is not to-day one plant species which has not undergone great, and to a certain extent, constant change.

The life-forces of the plant in endeavouring to harmonise and adapt the action of its acquired tendencies to its surroundings may, through many generations, slowly adapt itself to the necessities of existence, yet these same accrued forces may also produce sudden and, to one not acquainted with its past history, most surprising and unaccountable changes of character. The very existence if the higher orders of plants which now inhabit the earth has been secured to them only by their power of adaptation to crossings, for through the variations produced by the combination of numerous tendencies, individuals are produced which are better endowed to meet the prevailing conditions of life. Thus to Nature's persistence in crossing do we owe all that earth now produces in man, animals, or plants.

Natural and artificial crossing and hybridisation are among the principal remote causes of nearly all otherwise perplexing or unaccountable sports and strange modifications, and also of many of the now well-established species. Variations, without immediate antecedent crossing, occur always and everywhere from a combination of past crossings and environments, for potential adaptations often exist through generations without becoming actual, and when we fully grasp these facts there is nothing mysterious in the sudden appearance of sports; but still further intelligent crossings produce more immediate results, and of great value, not to the plant in its struggle with natural forces, but to man, by conserving and guiding its life-forces to supply him with food, clothing, and innumerable other luxuries and necessities. Plant life is so common that one rarely stops to think how utterly dependent we are upon the quiet, but magnificently powerful work which it is constantly performing for us. It was once thought that plants varied within the so-called species but very little, and that true species never varied. We have more lately discovered that no two plants are ever exactly alike, each one having its own individuality, and that new varieties having endowments of priceless value, and even distinct new species, can be produced by the plant-breeder with the same precision that machinery for locomotion and other useful purposes is produced by the mechanic.

The evolution and all the variations of plants are simply the means which they employ in adjusting themselves to external conditions. Each plant strives to adapt itself to environment with as little demand upon its forces as possible, and still keep up in the race. The best-endowed species and individuals win the prize, and by variation as well as persistence. The constantly varying external forces to which all life is everywhere subjected demand that the inherent internal force shall always be ready to adapt itself or perish. The combination and interaction of these innumerable forces embraced in heredity and environment have given us all our bewildering species and varieties, none of which ever did or ever will remain constant; for the inherent life-force must be pliable, or outside forces will sooner or later extinguish it. Thus adaptability, as well

* By Luther Burbank, read at the International Plant Breeding Conference, New York, September 30 to October 2, 1902.

as perseverance, is one of the prime virtues in plant as in human life.

Plant-breeding is the intelligent application of the forces of the human mind in guiding the inherent life-forces into useful directions by crossing to make perturbations or variations and new combinations of these forces, and by radically changing environments, both of which produce somewhat similar results, thus giving a broader field for selection, which again is simply the persistent application of mental force to guide and fix the perturbed life-forces in the desired channels. Plant-breeding is in its earliest infancy. Its possibilities, and even its fundamental principles, are understood but by few; in the past it has been mostly dabbling with tremendous forces, which have been only partially appreciated, and it has yet to approach the precision which we expect in the handling of steam or electricity; and, notwithstanding the occasional sneers of the ignorant, these silent forces embodied in plant-life have yet a part to play in the regeneration of the race, which by comparison will dwarf into insignificance the services which steam and electricity have so far given. Even unconscious or half-conscious plant-breeding has been one of the greatest forces in the elevation of the race. The chemist, the mechanic have, so to speak, domesticated some of the forces of Nature, but the plant-breeder is now learning to guide even the creative forces into new and useful channels. This knowledge is a most priceless legacy, making clear the way for some of the greatest benefits which man has ever received from any source by the study of Nature. A general knowledge of the relations and affinities of plants will not be a sufficient equipment for the successful plant-breeder. He must be a skilful botanist and biologist, and, having a definite plan, must be able to correctly estimate the action of the two fundamental forces, inherent and external, which he would guide.

The main object of crossing genera, species, or varieties is to combine various individual tendencies, thus producing a state of perturbation or partial antagonism by which these tendencies are, in later generations, dissociated and recombined in new proportions, which gives the breeder a wider field for selection; but this opens a much more difficult one—the selection and fixing of the desired new types from the mass of heterogeneous tendencies produced, for by crossing, bad traits as well as good are always brought forth. The results now secured by the breeder will be in proportion to the accuracy and intensity of selection, and the length of time they are applied. By these means the best of fruits, grains, nuts, and flowers are capable of still further improvement in ways which to the thoughtless often seem unnecessary, irrelevant, or impossible.

When we capture and domesticate the various plants, the life-forces are relieved from many of the hardships of an unprotected wild condition, and have more leisure, so to speak, or, in other words, more surplus force, to be guided by the hand of man under the new environments into all the useful and beautiful new forms which are constantly appearing under cultivation, crossing, and selection. Some plants are very much more pliable than others, as the breeder soon learns. Plants having numerous representatives in various parts of the earth generally possess this adaptability in a much higher degree than the monotypic species, for having been subjected to great variations of soil, climate, and other influences, their continued existence has been secured only by the inherent habits which adaptation demanded; while the monotypic species, not being able to fit themselves for their surroundings without a too radically expensive change, have continued to exist only under certain special conditions. Thus two important advantages are secured to the breeder who selects from the genera having numerous species—the advantage of natural pliability, and in the numerous species, to work upon by combination for still further variations.

The plant-breeder before making combinations should with great care select the individual plants which seem best adapted to his purpose, as by this course many years of experiment and much needless expense will be avoided. The differences in the individuals which the plant-breeder has to work upon are sometimes extremely slight. The ordinary unpractised person cannot by any possibility discover the exceedingly minute variations in form, size, colour, fragrance, precocity, and a thousand other characters which the practised breeder perceives by a lightning-like glance. The work is not easy, requiring an exceedingly keen perception of minute differences, great practice, and extreme care in training the organisms operated upon; and even with all the naturally acquired variations added to those secured by scientific crossing, and numerous other means, the careful accumulation of slight individual differences through many generations is imperative, after which several generations are often, but not always, necessary to thoroughly "fix" the desired type for all practical purposes.

The above applies to annuals, or those plants generally reproduced by seed. The breeder of plants which can be reproduced by division has great advantage, for any valuable

individual variation can be multiplied to any extent desired without the extreme care necessary in fixing by linear breeding the one which must be reproduced by seed. But even in breeding perennials the first deviations from the original form are often almost unappreciable to the perception, but by accumulating the most minute differences through many generations the deviation from the original form is often astounding. Thus by careful and intelligent breeding any peculiarity may be made permanent, and valid new species are at times produced by the art of the breeder, and there is no known limit to the improvement of plants by education, breeding, and selection.

The far-reaching possibilities of plant-breeding can hardly be estimated. It would not be difficult for one man to breed a new Rye, Wheat, Barley, Oats, or Rice which would produce one grain more to each head, or a corn which would produce an extra kernel to each ear, another Potato to each plant, or an Apple, Plum, Orange, or nut to each tree. What would be the result? In five staples only in the United States alone the inexhaustible forces of Nature would produce annually, without effort and without cost, 5,200,000 extra bushels of corn, 15,000,000 extra bushels of Wheat, 20,000,000 extra bushels of Oats, 1,500,000 extra bushels of Barley, 21,000,000 extra bushels of Potatoes.

But these vast possibilities are not alone for one year, or for our own time or race, but are beneficent legacies for every man, woman, and child who shall ever inhabit the earth. And who can estimate the elevating and refining influences and moral value of flowers, with all their graceful forms and bewitching shades and combinations of colours and exquisitely varied perfumes? These silent influences are unconsciously felt even by those who do not appreciate them consciously, and thus with better and still better fruits, nuts, grains, and flowers will the earth be transformed, man's thoughts turned from the base destructive forces into the nobler productive ones which will lift him to higher planes of action toward that happy day when man shall offer his brother man, not bullets and bayonets, but richer grains, better fruits, and fairer flowers. Cultivation and care may help plants to do better work temporarily, but by breeding, plants may be brought into existence which will do better work always in all places and for all time. Plants are to be produced which will perform their appointed work better, quicker, and with the utmost precision. Science sees better grains, nuts, fruits, and vegetables, all in new forms, sizes, colours, and flavours, with more nutrients and less waste, and with every injurious and poisonous quality eliminated, and with power to resist sun, wind, rain, frost, and destructive fungus and insect pests; fruits without stones, seeds, or spines; better fibre, coffee, tea, spice, rubber, oil, paper, and timber trees, and sugar, starch, colour, and perfume plants. Every one of these, and ten thousand more, are within the reach of the most ordinary skill in plant-breeding.

Fellow plant-breeders, this is our work. On us now rests one of the next great world movements, the guidance of the creative forces are in our hands. Man is slowly learning that he too may guide the same forces which have been through all the ages performing this beneficent work which he sees everywhere above, beneath, and around him in the vast teeming animal and plant life of the world.

These lines were penned among the heights of the Sierras, while resting on the original material from which this planet was made. Thousands of ages have passed, and it still remains unchanged. In it no fossils or any trace of past organic life are ever found, nor could any exist, for the world creative heat was too intense. Among these dizzy heights of rock, ice-cleft, glacier-ploughed, and water-worn, we stand face to face with the first and latest pages of world creation, for now we see also tender and beautiful flowers adding grace of form and colour to the grisly walls, and far away down the slopes stand the giant trees, oldest of all living things, embracing all of human history; but even their lives are but as a watch-tick since the stars first shone on these barren rocks, before the evolutive forces had so gloriously transfigured the face of our planet home.

Senecio pulcher.

Few autumn-flowering border perennials bear a greater stamp of merit than this. Its character as a plant—erect, of medium height (2ft to 3ft)—and its vigour and floriferousness, together with the richness of its brilliant purplish-crimson flowers, make it highly desirable. The blossoms have a golden centre or disc. It is said to do best, or at least to become best-established when planted in the Spring, and as the season is backward, there is still time to lay in a few plants. This plant has been awarded the R.H.S. first-class certificate. A sandy loam in an open position suits it.



A Handsome Border Perennial—*Senecio pulcher*.



Melon Cultivation.

Gardeners as a body must of late have been rubbing their eyes at the glowing accounts which have recently appeared in the daily papers concerning the hotbed system of growing early crops. True, it has been given a new name, and been called the "French system," but really the only new point about it is the fact of its being tried on a somewhat extended scale for commercial purposes. In all other respects the so-called French system is identical with the one which has for generations been practised in the best British gardens for securing early crops of vegetables and fruits.

This is perhaps to some extent a digression from the subject of Melon culture, though in reality intimately connected with it, because in the days of old, gardeners were in the habit of growing their early Melons in dung-heated frames. To their credit be it said, that under such adverse circumstances they often managed to secure wonderfully good results; but considering the enormous amount of inconvenience and labour entailed, few, if any, would care to return to that system of Melon growing, either for private or commercial purposes, because better results can be obtained at less cost by the aid of hot-water pipes and the modern glass structure. Those who desire to grow Melons and have not the convenience of a suitable house, may do very well by making up a hotbed for the purpose now, or by planting in pits early in June without the aid of fermenting material; but the growth of early Melons on dung-heated frames is a delusion and a snare as far as profit is concerned. In this article I therefore purpose to deal with Melon culture as now conducted in structures supplied with artificial heat.

The time occupied in producing Melons, from the sowing of the seed till the fruits are ready to cut, varies considerably according to the seasons at which the sowings are made. Plants from seed sown during the first week in January, with good culture, will generally afford ripe fruits sixteen weeks after. From sowings made in March, two weeks less are required to reach a similar stage. During the summer months it is sometimes possible to cut handsome fruits from plants raised from seed sown only twelve weeks previously; but to do this every advantage must be taken to secure high temperatures throughout the day by closing early and using the syringe freely.

Care ought to be exercised in selecting the soil for sowing Melon seeds in, because without such attention plants will often get into a stunted condition in the earliest stages of growth in consequence of the presence of minute insects in the soil. At one time we used to get over difficulties of this description by burning, or thoroughly drying the compost over a boiler at work before using it. Now we like to prepare the compost a few weeks before it is used, and mix a little Vaporite with it. Good loam, with a third of leaf soil added, is, I consider, the best for the purpose. Many employ loam without any additional material, but I find the roots work much more freely when leaf soil is added. Each seed should be sown in a separate pot, as the plants then grow sturdily from the first, and the risk of receiving a check at an early stage of growth is thus avoided. If 3in pots are used, the only drainage necessary is a piece of crock placed over the bottom, and covered with a lump of fibrous turf. When roots are produced they quickly permeate the turf, and form good balls for planting into 6in pots or for planting into the permanent beds. When sowing the seeds I like to place them on their edges, as this often prevents them from rotting should the soil become a little too wet.

In dealing with plants from the early sowing there is often a difficulty in securing a good position for them until they are large enough to transfer to their final positions. Bottom heat is of great advantage, and yet the plants ought to be kept near the glass. These two conditions are not generally found in conjunction unless special means are taken to secure them. It is easy enough to find a suitable place for the pots containing the seeds where they will receive bottom heat, by placing them on the hot-water pipes or plunging them in propagating frames, but in either of these positions the seedlings are too far from the glass from the time the first pair of rough leaves are formed; consequently the stems become drawn at the outset. On the other hand, if at this stage they are taken from the bottom and placed on a shelf, a check is received, and for a time but slow progress is made. This difficulty may be over-

come to a certain extent by standing the pots on a board, raised above the pipes, at the front of a well-heated house or pit; but when this course is adopted, great care must be exercised to prevent an attack of red spider. The best of all plans is to make up a hotbed at one end of a house or pit, so that the young plants can be kept within a foot or eighteen inches of the glass, and at the same time receive good bottom heat. Sturdy, yet quick, growth is then obtained. When such a position is afforded them, it is a good plan to shift the plants into 5in or 6in pots, and grow them on till the roots have reached the sides of the pot, and then set in their permanent quarters. Plants raised from seeds sown at the present time will not need the special attention above referred to in regard to bottom heat in their early stages, but will succeed splendidly if placed on shelves near the glass as soon as the first pair of rough leaves are visible.

I am no advocate for using fermenting materials when forming Melon beds which are well supplied with pipes for affording bottom heat, because a strong heat is usually obtained to start with, and just at the time the plants require it the most (when they are swelling their fruits) the heat is fast declining. This alone is a strong objection; others are the constant watching required to keep shoots from being cut with the tying material as the bed sinks, and the great trouble experienced with woodlice wherever this practice is adopted. In many houses the bottom heat pipes have been fixed too low, and in order to get the plants fairly near the glass, fermenting material is used. A better plan is to place a row of bricks on either side, and add other layers until the required height is reached. Then lay cross pieces of rough boards, or slate slabs, to form the foundation for the beds, and over this place a layer of birch or straw, to prevent the soil from passing between the interstices when wood is used, or from becoming sodden when slate slabs are employed. If this plan is followed a chamber of heated air will be formed beneath the bed, which will maintain the soil at a more uniform temperature than it can be kept at when fermenting materials are used. If a space of from 9in to 12in in depth is left for the soil, ample root room will be afforded. At the beginning of June bottom heat may gradually be dispensed with, except in cases where it is necessary to hurry a crop, or when periods of cold wet weather prevail.

With regard to soil, a good turfy, yellow loam, rather adhesive in texture, is generally regarded as the most suitable, and I doubt not that such a soil will, with but little preparation, produce fine Melons; but growers, as a rule, are not able to obtain this ideal soil in sufficient quantities for Melon growing. Still, with a little extra attention to preparation, other soils may be rendered capable of producing equally good results. Stiff loams, without a particle of fibre, will grow grand crops of Melons; so will garden soil of a heavy nature. The former should be stacked in a heap with layers of fresh horse-droppings and salt placed between the layers of soil, these being a foot in thickness, and the manure three inches. If this remains in the heap for six months it will require no other addition than one load of lime rubble to six of soil, with a little soot and a quart of bonemeal or superphosphate added to each barrow-load. Garden soil, if rich, should have the same quantity of lime rubble, soot, and bonemeal added, also half a load of wood ashes to six loads of the other materials, and if manure has not recently been given, one load of fresh horse droppings also. Whatever soil is employed should be placed in mounds on the bed twenty-four hours before planting is done, to enable every part of it to become thoroughly warm. Regarding varieties, the following selection will be found excellent:—*Green-fleshed*: Windsor Castle, very large, beautifully netted; Imperial Green, and Earl's Favourite. *White-fleshed*: Royal Favourite, beautifully netted and handsome; Hero of Lockinge, old, but still one of the best. *Scarlet-fleshed*: Blenheim Orange, Superlative, and Invincible.—E. L. D.

Antiquarian Feasts.

The Russian scientists who have been making a meal of a portion of a 100,000-year-old mammoth have, no doubt, says the "Manchester Courier," established a record in ancient fare. Compared with it, indeed, the menu of that remarkable dinner given by a Brussels antiquary named Goebel was a thing of yesterday. "At that dinner," said one of the guests, "I ate Apples that ripened more than 1,800 years ago; bread made from wheat grown before the children of Israel passed through the Red Sea, and spread with butter that was made when Elizabeth was Queen of England; and I washed the repast with wine of Genoa." The Apples which formed part of the dessert were grown before Pompeii was overwhelmed; in fact, they were rescued from its ruins. The wine was recovered from an old vault in the city of Corinth; and the wheat was found in a chamber in one of the pyramids. It is interesting to know that this antiquarian fare was all excellent, the fruits particularly being described as of as fine flavour as if they had just been taken from the trees.

Experiments.

An excellent report of field experiments has been issued by the Harper Adams Agricultural College, Newport, Shropshire. It contains a great amount of information of special value to farmers, who will do well to study its pages closely. A section is also devoted to experiments in garden and orchard; and Potatoes are dealt with in a thoroughly exhaustive manner. With these sections this notice will therefore briefly deal.

An experiment was commenced in 1902 to determine (a) The effect of root and branch pruning on Apple trees; (b) the effect on growth of trees when planting on grass or cultivated ground. The varieties experimented upon were Bismarck, Bramley's Seedling, and Cox's Orange Pippin. "In both 1906 and 1907 the trees which were unpruned formed more blossoms than the pruned trees, especially in the case of Cox's Orange Pippin. It is also shown that the average increase in diameter of the stem of the unpruned trees is less than that of those pruned regularly. Cox's Orange Pippin shows the greatest difference in this respect." These points fully confirm the ideas which generally prevail in regard to the matter; but the fact that an unpruned tree will for several years after planting produce more fruit buds, and also more fruit, certainly does not indicate that the system is to be commended. Our experience is that a well pruned tree, if properly managed in regard to root-pruning, when necessary, will produce quite as many blossom buds as are needed, and even then in a favourable season the fruit requires to be freely thinned. On the other hand, when trees are unpruned, their vitality is weakened by the overproduction of blossom buds, and it would be a wise policy to thin them before flowering time, otherwise in favourable seasons the fruit needs severe thinning if good samples in regard to size and colour are to be produced. Pruning offers the best and simplest way of adjusting such matters. There is also another reason in favour of pruning, viz., prolific varieties, such as Lane's and Stirling Castle, if left unpruned, become stunted and never make good trees.

The benefit newly-planted trees derive from having a space free from grass round their stems is clearly brought out in the report, where it is shown that those so treated increased in diameter of stem, and in the length of annual growth in a remarkable manner when compared with trees having grass growing close to the stems.

POTATOES.

In the trials of varieties, four early, four second-early, and ten maincrop varieties were tested in regard to their cropping powers. Epicure produced the heaviest crop of ware, and was ready for lifting first; but Duke of York was the best flavoured among the early varieties. (Sharpe's Express was not included in the trial.) Among second earlies, British Queen and The Colleen proved to be the best croppers, the latter being quite free from disease, and on that account is worthy of the attention of Potato growers generally. Up-to-Date and The Factor produced the heaviest crops among maincrop varieties.

A striking illustration is given on page 23 of the report in regard to the superiority of Scotch over ordinary English seed, where it is shown that for an extra outlay of £2 7s. 6d. per acre, the crop produced from Scotch seed resulted in an increase of £15 1s. 10d. per acre in value of additional crop. Perhaps the most interesting experiment in connection with Potatoes was that planned to compare the results obtained from Scotch seed versus immature home-grown seed. Trials were conducted at the College, and at Albrighton, seven varieties in all being under trial, and in the case of every variety, English seed produced the heavier yield. The value of this experiment is, however, to a great extent nullified by the fact that the English seed was sprouted before planting, the Scotch seed being unsprouted. What was wanted is a clear trial of Irish, Scotch, immature and mature English tubers, all to be boxed and sprouted before planting; and it is gratifying to know that arrangements have been made for conducting such a trial this season.

Plots sprayed twice with Bordeaux mixture, at a cost of 17s. per acre, gave an increased value in regard to crop of £6 15s. per acre over unsprayed plots.

The "scab" disease is very rampant on some land in the neighbourhood of the College, and a series of small plots was arranged on land known to produce scab, and the following substances were applied as dressings:—Salt, lysol, carbolic acid, and copper sulphate. The only one that was effective was the copper sulphate, with which further experiments will be carried out.

In conclusion, we may say that all the experiments treated of in the report seem to have been conducted with commendable thoroughness, and the results given deserve to be closely studied and widely circulated.—WARWICK.



Primula Forbesi.

This pretty species of Primula comes readily from seed sown as for other varieties. Drain a 6in or 7in pot, and cover the cracks with moss or rotten leaves to keep the drainage open, and with soil consisting of fibry loam, leaf mould (a good proportion), and sand, fill to within an inch of the top, and give a good watering previously to sowing the seed. This should be scattered thinly over the surface, and be merely covered with the same kind of soil through the seed sieve. It will now only need a slight watering through a fine roset can; and, farther, if the soil is watered too much after the seed is sown, it makes the surface too firm, which consequently cracks, and leaves the sides of the pot. Guard against this by soaking the soil by immersion. Place the seed pot in an intermediate temperature; have a piece of glass over it; keep shaded with paper until germination occurs. When large enough to handle, dibble what plants are wanted into 3in pots, singly, using the same kind of soil. In these pots they will make nice plants for edging the greenhouse, or other cool houses, and are useful in finishing off a group of plants. In a cut state the flowers are graceful in small vases, in company with the different kinds of ferns or grasses, and will keep fresh a considerable time. Another way to show this plant to advantage is by pricking off five or six into a 6in pot. These come in for furnishing the rooms. They are effective this way, as one gets more together. After blooming, or in the following Spring, the stock can be increased by root divisions, and be grown on similarly to the seedlings. Sometimes they show varied forms, so one can have one's own strain by propagating from the best.

This species of Primula does well outside on rockwork, but will need plenty of water if given a sunny aspect. A cool position is by far the best, say where the late afternoon sun only reaches them. A temporary site can be had behind some nook, or among some rough stones, adding some fresh leafy soil for them to grow in.—C. F. C., Sandy, Bedfordshire.

[This dainty little Primula is hardy in all except the bleakest gardens, and flowers at this season on rockeries. So pretty and altogether charming is it, however, that it thoroughly deserves every care, and when grown in pans, in cold frames or in the alpine house, it is usually seen at its very best. Our correspondent sent some flowers from stray seedlings, which are much deeper coloured—an amaranth-purple—than those of the type; but we prefer the paler flowers of the species. We placed them in a small glass trinket upon a mantelpiece, and they are lasting beautifully fresh.—Ed.]

Barr's Daffodils.

Since last Saturday, the second day of May, I have been feasting my eyes on some of the fairest Daffodils of the year. Never do I sojourn in the Daffodil fields of Messrs. Barr and Sons at Surbiton at this season without being rewarded with an armful of the loveliest of the Narcissi.

After the phenomenally ungenerous Spring, and the hail and winds, frost and snow that came on St. George's Day and succeeding dates, one was prepared to discover bruised and broken flowers, with the clearness and freshness all destroyed. Happily, these calamities did not present themselves; and the wealth of grace and charm of colours were here, as in the best of previous seasons.

First of all I was led to the beds of new seedlings, growing vigorously in the open, protected on the windy side with Hazel-wood hurdles. It is very true that new blooms have to be of very high merit in these days if they are to supersede the best of existing sorts, or to gain awards. The chief adjudicating body is the Narcissus Committee of the Royal Horticultural Society, but they must be very stern critics, for their awards this year can be numbered on the fingers of one hand. The rule that five blooms of any novelty must be shown, of course means that exhibitors must have a small stock of the seedling ere fine good blooms can be cut for exhibition.

The taste of the majority of flower lovers, so far as I can judge, leans towards the white and orange-cupped Narcissi. Flowers like Ariadne, Waterwitch, White Lady, Janet Image, and Madame de Graaff, among the paler kinds; and those orange-cupped varieties like Royal Star, Lucifer, Will Scarlett, Blood Orange, and Albatross, always appear to "fetch" the casual admirer. This is partly because these are still less common than the golden and bicolor trumpets. Certainly, too, this class is more dainty, and has more of the airy grace of

Spring than the sturdy Emperors, Empresses, Horsfieldis, or even such as Sir Watkin. But year by year one yearns for the day when some of these exquisite flowers will be in the back garden of every working artisan or clerk who makes gardening a hobby. Why should the prices be held so high? Is it actually the case that the increase or multiplication of the bulbs is so slow as to make several shillings per bulb a necessity of the trade? Be that as it may, we are slowly democratising the Daffodil. But we have a long way to go. "Beauty" at 2s. per bulb, and "Duchess of Westminster" at 5s. ditto, are among the cheapest on the market.

Now one ought to refer as usual to the varieties *seriatim*. I think I will depart from the custom of former years, however, and by naming a selection of kinds of unchallengeable merit and variation, leave the reader to refer to Messrs. Barr's Daffodil list for 1907, which is without doubt the best and most

Little Dirk
Lobster
Lobularis
Lord Roberts
Lucifer
Lulworth
Mme. de Graaff
Mme. Plomp
May Queen
Mountain Maid

Mrs. Morland Crofield
Mrs. Langtry
Oriflamme
Peach
Strongbow
Sunset
The Sisterhood
Torch
and Will Scarlett

I am greatly surprised to find Angel's-tears (*N. triandrus albus*) so cheap—only a shilling per dozen. It is prettier than Snowdrops! Of the unnamed seedling Narciss, the following are likely to gain a place: 208, white, of the Agnes Harvey type; 910, a white Ajax of perfect form, with finely crimped trumpet; and 929, which resembles King Alfred. Scarlet Herald is a newly named novelty, with large, flattish orange-red crown and pale yellow perianth. Annie Holloway is another acquisition, with the Johnstons trumpet—long, smooth, funnel-shaped. Lastly, Czarina, a tall and strong canary-yellow trumpet Daffodil, with handsome perianth.

We pass from the Narcissi to the Tulips, of which the doubles and cottage varieties are at their best, while the May-flowering and Darwins have every appearance of a splendid floral crop.

Then there are the Primroses and Polyanthuses, upon which Mr. W. Barr bestows much close personal attention. No finer lot of crimson is perhaps to be found anywhere; while the strains of white and cream shades; of golden yellows and buttercup hues; and, thirdly, of gold-laced Polyanthuses, are very fine indeed. Only by the most rigorous roguing could such excellent selections be bred and kept.

Other hardy flowers at this time in flower comprise *Pulmonaria rosea* and *P. angustifolia azurea*, each of which are at home in any soil or situation, and which flower from March to June. *Euphorbia polychroma* (syn. *E. epithymoides* of Kew) grows in a round, compact mass, the size of a large football, bearing emerald clusters. Close by were beds of *Megaseas*—*Saxifraga ligulata* and other species—among which the varieties of *S. ligulata* named Distinction (deep red) and Brilliant Red were by far the best. A colony of the Strawberry-like *Waldstenia trifoliata*, having burnished yellow flowers, also attracted attention. Mention ought to have been made, when speaking of the Tulips, of *Fosteriana* and *Greigi*, than which no scarlets are better.

A new mossy *Saxifraga* is named Ditton Crimson, and has already obtained an award at one of the shows. Of the *Rhei* type, the flowers are large, deeply coloured, and freely borne on stalks 4½ in high. *Androsace pyrenaica*, making tight little tufts of growth, and smothered in starry white flowers, is splendid for the crevices of the rockery. The rock garden, which is such a feature at Barr's nursery, is being re-arranged, large boulders and free-stone masses from Guildford being now employed. It ought to afford a good object lesson in the art of rock gardening when completed.

Anchusa myosotifolia, like a huge Forget-me-not, was flourishing in a sheltered bottom pocket of the rockery. It is not very frequently seen in gardens. Of the *Aubrietias* there is now no end, but in the new Mrs. E. M. Crofield (violet-purple) growers have a large-flowered addition. *Aubrietia* "Lavender" is also new, and is here. In a pot, evidently intended for one of the exhibitions, I observed *Iris atropurpurea*, with deep purple-red flowers, 15 in high; and a gorgeous mass also of that gem among alpins, *Gentian verna*. —J.

A New Iris—I. Sind-pur Amethyst.

There is no lack of variety of colour now among the early-flowering bulbous Irises. During recent years there have been several pretty additions, and along with the violet-coloured *Iris reticula* the grower can choose the purple-flowered *I. persica purpurea*, the golden-yellow *I. Danfordiae*, or the pale blue *I. histrioides*. The new hybrid form herewith figured is the result of crossing *Iris sindjarensis* with *Iris persica purpurea*, and it is said to partake of the habit and freedom of flowering of *Iris sindjarensis*. The colour is rosy-heliotrope-violet, with white on the fall and citron keel. An award of merit was accorded by the R.H.S. when it was shown on March 31 by Mr. C. G. Van Tubergen, jun., Haarlem, Holland.

Achillea rupestris.

Here is another gem for the rockery in May, growing but 4 in high, and giving abundance of its pure white blossoms, marked with a yellow eye—the stamens.

Alyssum saxatile fl.-pl.

This is quite one of the best forms of Madwort for the rockery in May. In height it grows but 4 in, and produces abundance of flowers of an especially rich yellow, and thoroughly double.



A New Bulbous Iris.

complete that can be got. The following are mentioned in the list of "new seedling Daffodils for 1907," though some have been known for a year or two:—

C. H. Curtis
Cleopatra
Corallina
Cresset
Cygnet
Egret
Eileen Mitchell
Eoster
Fantasie
Incognita
Isolde
Janet Image

King Alfred
Loveliness
Maggie May
Mrs. Geo. H. Barr
Peter Barr
Royal Star
Salmonetta
Scarlet-eye
The Bride
Vivid
Weardale Perfection
and White Queen

Others of high merit deserving attention comprise:—

Admiral Makaroff
Admiral Togo
Albatross
Alice Knights
Almira
Ariadne
Beacon
Beauty
Blackwell
Blood Orange
Bountiful
Bridesmaid

Cardinal
Chancellor
Chaucer
Cherry Ripe
Diana
Duchess of Westminster
Duke of Bedford
Epic
Firebrand
Golden Spur
Gwyther
Lady Margaret Boscawen

Societies.

R.H.S. Scientific Committee, April 28th.

Present: Mr. E. A. Bowles, M.A., F.L.S., F.E.S. (in the chair; Dr. A. B. Rendle; Messrs. W. Cuthbertson, J. T. Bennett-Poë, J. W. Odell, H. J. Elwes, A. Worsley, W. Hales, and F. J. Chittenden (secretary).

Daffodil seedlings.—Rev. G. Engleheart, V.M.H., sent the following communication concerning the white seedling Daffodils shown by him at the last meeting. "During the past twenty years I have several times, in successive years, cross fertilised *Narcissus* M. J. Berkeley ♀ on a considerable scale in order to obtain a race of early coloured *N. incomparabilis*, and in this I have been successful. But in each set, when it reached the flowering stage, there have appeared some of these white trumpets, virtually M. J. Berkeley itself, except in colour. There has always been also a sprinkling of yellow trumpets, i.e., M. J. Berkeley itself, reproduced from seed of a few flowers which escaped being totally disanthered, and the whites, I am convinced, originated in the same way. I mean that they were not produced by pollen of any white trumpet being conveyed to M. J. Berkeley. For (1) no white trumpets were grown near, and few, if any, were in bloom so early as M. J. Berkeley; (2) early white trumpets, such as *N. cernuus*, invariably, in my large experience, modify the form of the ♀ parent, and (3) the appearance of flowers of this same character in every batch of seedlings points to a uniform internal cause in M. J. Berkeley itself. Not only the form of the flower, but the foliage, stature, whole habit, and precise period of bloom are M. J. Berkeley in counterpart.

"M. J. Berkeley was raised by Backhouse about 1840, and is pretty obviously a self-fertilised seedling from *N. maximus*, which in its turn is a wild species indigenous on the French side of the lowland Pyrenees. I have had bulbs direct from the wild habitat, and have been in correspondence with a good botanist who has seen the plants in bloom there, but I have never heard of any white wild variety of *N. maximus*. I have myself raised from self-fertilised seed of *N. maximus* a flower in the way of M. J. Berkeley, and that form has no appearance in any single feature of being the result of a cross with a white trumpet. Personally, I have no doubt whatever that this is a sudden 'spontaneous' break to white from yellow.

"The nearest analogy I can adduce is the occasional appearance of a pure white form in wild beds of the yellow Pyrenean *N. muticus*, quite reproductions, in every feature but colour, of *muticus* itself. No white trumpet exists in the same zone as *N. muticus*, the little wild white *N. moschatus* being thousands of feet higher in a remote valley.

"I have no reason whatever to suppose that there is any white hybrid blood in the ancestors of M. J. Berkeley, i.e., that these white seedlings exhibit a reversion to ancestral character. It seems more likely to be an instance of a sudden 'mutation' from yellow to white in colour progress. It is interesting to note that precisely the same thing has been noticed in New Zealand in seedlings of M. J. Berkeley."

Seedlings of Gnetum.—Mr. W. Hales showed seedlings of *Gnetum Gnetum* grown at the Chelsea Physic Garden, exhibiting the foot which absorbs the food stored in the seed for the nourishment of the growing seedling; this foot is developed only to a very slight degree in some other *Gymnosperms* such as *Ephedra*.

Delayed flowering of Amaryllis.—Mr. Odell showed some flower buds of *Amaryllis belladonna* which were now appearing. The flowering had been delayed in many cases in the autumn, apparently through the short suitable season for flowering. Mr. Baker states that the normal period of flowering was in April in the native habitat, but this statement was called in question.

Floral malformations.—Mr. Bowles showed on behalf of Messrs. Hogg and Robertson, of Dublin, a malformed flower of *Narcissus* J. T. Bennett-Poë. The parts of the perianth and the stamens were each nine, and springing from the base of the style was a narrow tubular growth embracing what appeared to be a secondary style. This flower, and a double spathed *Caladium*, L. A. Van Houtte, somewhat similar in structure to the double spathed *Richardia* shown at the last meeting, exhibited by Messrs. J. Veitch, of Chelsea, were referred to Mr. W. C. Worsdell for further examination.

Pyronia John Seden.—Messrs. J. Veitch showed fruits of one of the hybrids previously exhibited before the committee in the autumn. The fruits of this hybrid were Quince-like in appearance, and had a remarkably pleasant aroma, but were still quite hard.

Snowdrop bulbs.—Brodie of Brodie, Brodie Castle, Forres, sent two Snowdrops with the new formed bulbs produced at a distance of two inches above the original bulbs, with which they were connected by means of a tube formed by sheathing membranous leaves.

Royal Botanic, April 22.

This year's second monthly show of flowers and plants within the gardens of the Royal Botanic Society, Regent's Park, London, attracted a fair number of visitors, and some of the exhibits were very choice and beautiful. The collection brought together, however, furnished on the whole unmistakable evidence of the serious effects of a backward season. On every hand, alike from nurserymen and spectators, one heard a note of lament concerning the fickleness of the weather, and the beautiful grounds presented a somewhat depressing aspect, such as Londoners do not like to associate with them even in the month of April.

Nevertheless, there were some radiant displays of colour, the most dazzling being a magnificent collection of *Cinerarias* exhibited by Mr. Edward Wagg, of the Islet, Maidenhead, and to whom was awarded the gold medal of the society. The collection occupied a considerable space in the centre of the show, and the prismatic variations of bloom were greatly admired. There was, as is usual at this time of year, a fine display of Daffodils, and Messrs. H. R. Darlington, of Park House, Potters Bar, were awarded a large silver medal; silver-gilt medals going to Messrs. Barr and Sons, King Street, Covent Garden; the Misses Curry, of Lismore, County Waterford; and Messrs. Hogg and Robertson, of Dublin.

For a choice collection of alpine, Messrs. John Peed and Son, of West Norwood, were awarded a silver medal by the society, and Messrs. William Cuthbush and Son, of Highgate and Barnet, received a silver-gilt medal for their collection of forced plants.

Norwich Spring Show.

The Norfolk and Norwich Horticultural Society held its first show of the year on Saturday, April 25, in the St. Andrews Hall. The weather was very unpropitious, and doubtless was the cause of falling off in the entries. However, the excellence of the exhibits compared well with former shows. A pretty feature of the show was a competition for Major Petre's challenge cup, being a circular group of plants 8ft wide, for which there were four entries. *Narcissi* were beautiful, and in great quantity, though less than at former shows. Nurserymen's exhibits lent great aid to the general effect of the show room, and were severally admired. The chief prizetakers were Mr. J. B. Coaks, Mr. H. Skelton, the Mayor of Norwich, Mr. L. Tillet, M.P., Dr. Osbourne, and Mr. R. Fellows. The three chief first prizes for orchids were secured by Mr. Rider Haggard, while the three second prizes went to Miss V. Fellows, Shotsham. The *Dendrobiums* in both lots were very effective. *Mignonette* was plentiful, and a fine lot was staged by Mrs. Thomson. In the cut flower section, the *Narcissi* formed a strong feature. For thirty-six varieties: first, Mr. G. Davison, in whose lot was a new seedling named Unicorn, for which was given an award of merit. In the minor class the principal prizetakers were Mrs. Stedman, Messrs. T. Chaplin and S. Cozens-Hardy. Col. Rous took first place for exotic cut flowers; while Mr. R. Fellows was second. In the fruit and vegetable sections, Mr. Mills Brooks was first for Strawberries; Mr. J. B. Coaks, second; and Col. Rous third. The vegetables were not up to former years, and the chief prizetakers were Messrs. E. J. White, W. Joice, Mrs. Lubbock, and Col. Rous.

Messrs. Daniels, Ltd., contributed largely to the general display with a beautiful table of exhibition plants in assortment. Messrs. Hobbies, Ltd., Dereham, as usual had a beautiful stand of plants, among which were very prominent specimens of *Roses* in bush and standard form. The charming *Dorothy Perkins* was very effective. Mr. R. C. Notcutt, Ipswich, had a fine collection in which was the fine variety of *Ivy Hedera dentata variegata*.—D. C.

Croydon Horticultural Mutual Improvement.

"Insect Pests" were again lectured upon by Mr. H. Withers, of South Croydon, at the society's rooms, Sunflower Temperance Hotel, on the 21st inst. In his previous lecture he dealt with the external formation of these small "animals," and on Tuesday he confined his opening remarks to the internal structure. Breathing, as they do, through tracheæ or tubes running through the body, it is the closing of these one has to do to cause destruction. Many of these pests were illustrated with lantern views, and as each was shown the lecturer described the ravages it makes in attacking vegetation. Like some of our birds, insects may be found bearing close resemblance to the bark of trees, whilst some caterpillars closely resemble the twigs of trees, and this forms a protection to them against birds who feed on them. There are also insects which, unless closely watched, one would take for moss, for they are fashioned in structure and appearance very like the mossy haunts they frequent. Oftentimes one hears a remark that cold easterly winds bring with them blight, but this is not so; the cause is simply prolongation of very slow growth in vegetation, and which renders it more susceptible to the insect pests, therefore proving that if quick and strong growth can be encouraged,

the prevention of these troublesome insects can be greatly enhanced. The lecture was full of interest from commencement to conclusion, and it was with ready accord a hearty vote of thanks to Mr. Withers was adopted. Exhibits were well to the fore again. Mr. C. Thrower brought an exceedingly well flowered Azalea, Mr. R. Cleveland two pot trees of Pears in full bloom, Mr. M. E. Mills a choice collection of Dendrobiums and Cypripediums (included in the former was a fine piece of Dendrobium Christopher), Mr. F. Oxtoby staged pots of excellent Mignonette and a Hippeastrum, and Mr. A. Edwards three pots of double Cinerarias.

Egham (Surrey) Gardeners'.

VIOLETS.

At the April meeting of this association, Mr. H. Peerless presiding, a paper on Violets, written by Mr. White, of Barrow Hills, Longcross, Chertsey, was kindly read by Mr. W. Swan in the unavoidable absence, through illness, of Mr. White. The subject was divided into four sections, viz., spring, summer, autumn, and winter. The young growths were put in frames about 2in apart, kept syringed, and planted out in May, in soil that had been manured and dug the previous autumn, in a sheltered position, not too much shaded. The plants were lifted in the autumn with good balls, and planted in frames well up to the light. Clay's fertiliser or fowl manure, with soot and wood ashes, were recommended. The sorts grown were La France and Princess of Wales, singles; Marie Louise and Lady H. Campbell, doubles. A very interesting discussion followed, and the usual votes of thanks were accorded.—H. P.

The Metropolitan Public Gardens Association.

OPEN SPACES.—At the monthly meeting of the Metropolitan Public Gardens Association, held at 83, Lancaster Gate, W., Sir William Vincent, Bart., vice-chairman, presiding, a letter was read from the Worshipful Company of Gardeners, stating that they were going to confer the Hon. Freedom of the Company on the Earl of Meath as chairman of the association, to which it was stated a reply had been sent expressing the appreciation of the association for this mark of recognition.

The Housing and Town Planning Bill was under consideration, and while the latter portion of the Bill was generally approved of, it was pointed out that certain amendments were requisite in the first part for the proper protection of public open spaces and recreation grounds, and it was decided to take steps in order to secure their insertion. Letters were read from the War Office, and from the Office of Works in reference to the Duke of York's school site, part of which the association desired to preserve as an open space, in the event of the school being entirely removed from Chelsea, instead of this large area of twelve acres being entirely converted into a building site, and it was agreed to make further efforts in the direction indicated.

Letters were read respecting the derelict Shadwell Market site of the City Corporation, the riverside portion of which the association for several years past had been endeavouring to secure for public use, and it was agreed to renew negotiations. Various contributions from friends and supporters of the association were announced towards Ludshott Common Scheme, for which about £550 is still needed, the proposed addition of twelve acres to Ruskin Park, for which a balance of about £5,000 is needed from voluntary sources, and the Barking Road and Bow recreation grounds for which £800 and £200 are respectively required to complete the purchase funds.

Progress was reported regarding the acquisition of thirty acres at Norwood, for which £2,000 is outstanding. Some twenty-five applications for the association's prizes for outside window competitions, to be organised in various parts of the Metropolis, were granted, the object being by this means to brighten and relieve the monotony of the streets in poor localities. It was stated that the extensive tree-planting operations of the association in the thoroughfares of East Ham and Walthamstow had been completed. Attention was drawn to the Swedish Church and burial ground forming Princes Square, Cable Street, E., which were for sale, and it was decided to endeavour to secure the site, which would form a valuable recreation ground in this poor neighbourhood. It was stated that the London County Council had agreed to purchase West Square, Southwark, the association having offered to lay it out, and that there was a danger of the Law Courts garden being absorbed for building extensions, this space having been laid out through the efforts of the association in 1899 at the cost of the late Rt. Hon. W. H. Smith, M.P.

Tulip, Canary Bird.

For massing in a nook on the rockery low down, this is quite one of the best of single Tulips. In height it grows about 15in when planted in fairly rich soil, the blooms being large and of that rich lustrous yellow so pleasing to look upon.

Notices of Books.

THE NATIONAL ROSE SOCIETY'S ANNUAL, 1908.

The Rose Annual arrived rather late in the Spring, but it is welcome. It opens with the annual report of the society's work, and presents portraits of the late Dean Hole, who was president of the N.R.S. from 1877 to 1904; also of Mr. Charles E. Shea, president in 1905-6; and Mr. E. B. Lindsell, the present head of the society. Mr. Lindsell also leads off in the general articles with notes on the Rose shows of last year. It was a disappointing year with regard to exhibition Roses. Everything went well up to the middle of June. Then came ten days of cold, harsh weather, during which the buds of exhibition varieties simply stood still. This was particularly noticeable among the h.p.'s, and this veteran cultivator says he has often vainly tried to solve the perplexing problem why h.p.'s should suffer more than h.t.'s and t.'s. Blooms, however, were abundant enough at the 4th of July show in London, 6,725 exhibition flowers being staged, though few were good enough to stamp themselves on the memory. The writer goes on to speak of the onerous and responsible task of judging the great class for seventy-two blooms at the Metropolitan Show. "Where there may be only a difference of a point or two between the exhibits, the individualism of the judges," he says, "must be a factor, and it is quite possible that another set of judges might place that small margin of difference the other way." However, Mr. Lindsell tells us that except on one occasion during the last seventeen years, the judges have been unanimous as to the championship award. Mr. Lindsell also discusses the question as to the best date of the show, and though a later date would suit his own interests much better, he concludes that "there is more probability of loss than gain" by having a late date. The whole of the president's article furnishes excellent reading, and is pregnant with all that is most interesting to the Rose exhibitor.

Notes on the Nickerson awards to novelties follow from the pen of Mr. Herbert E. Molyneux, and the Rose analysis for 1907 is reprinted from the *Journal of Horticulture*.

"Autumn-flowering climbing Roses," is by the Rev. J. H. Pemberton, and he mentions Grüss an Tepitz, Caroline Testout, Madame Abel Carrière, Rosette de la Legion d'Honneur, and Frau Karl Druschki (which flower from the top of the shoot); and Bardou Job, L'Idéal, and the Dijon teas (which flower from the laterals). But the real autumnal "climber" or rambler is scarce; and Mr. Pemberton suggests going back to the species and hybrids of species, and to strive, by crossing *Rosa multiflora* and *R. Wichuraiana* with *R. indica* and the common China, to produce the perpetual flowering habit in the offspring. Mr. George Laing Paul has more to say on the same subject, and his list is as follows:—Alister Stella Gray, François Crouse, Madame Abel Carrière, Paul's Single White, Pissardi, Trier, and Longworth Rambler. Under "Rose Jottings" there are several useful letters, and toward the conclusion of the Annual there are descriptions of the newer Roses, eighty-eight in all, by the "New Roses Committee." Altogether this Rose Annual is bright and valuable, and will be quite one of the most sought-for of the National Rose Society's publications. Applications for copies (1s. each) should be made to Mr. Edward Mawley, V.M.H., Rosebank, Berkhamsted.

DAHLIAS AND THEIR CULTIVATION, by J. B. Wroe, illustrated. W. H. and L. Collingridge, 148, Aldersgate Street, E.C. Price, 1s. paper covers; 1s. 6d. cloth, net.

Dahlia books are not numerous, but we believe Dahlia literature will gradually increase. There appears to be a new interest arising in the now-varied autumn flower. The book before us is a small one, but it deals very faithfully with its subject. All the present types of the flower are illustrated by drawings or by half-tone blocks, and the methods of propagating, staging, &c., are also illustrated. Other chapters are upon judging, enemies (including aphides, slugs, snails, earwigs, &c.), friendly insects, with selections of varieties for all purposes.

LAND REFORM, Occupying Ownership, Peasant Proprietary, and Rural Education, by the Rt. Hon. Jesse Collings, J.P., M.P., with illustrations. Longmans, Green, and Co., 39, Paternoster Row, London. New and popular edition; price 2s. 6d. net.

In our issues of Jan. 3 and April 18, 1907, we reviewed this book at some length; and we are therefore glad to welcome a new half-crown edition. All students of the land question, as affecting politics, or as politics affect it, ought to possess this book. Although it is not written in a very attractive style, the facts are here. The chapters dealing with the rise and

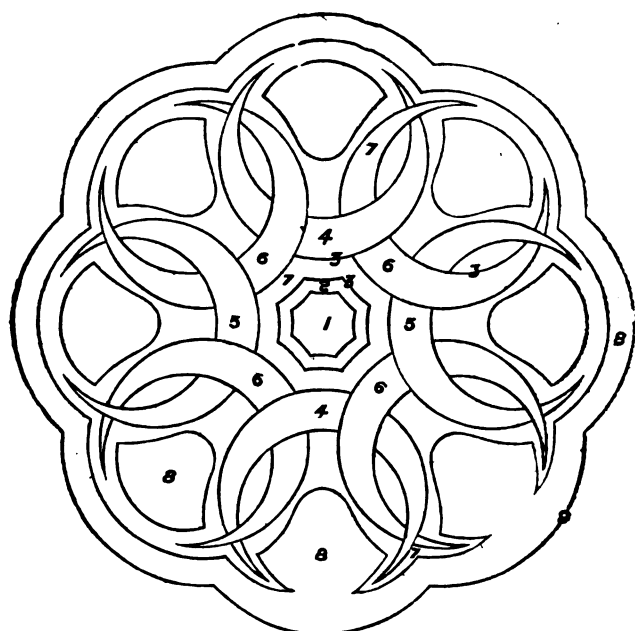
development of the English land system by themselves make the book valuable, particularly to the historical student. Mr. Collings tells us that the vast number of freeholders which existed in olden times were freeholder-tenants, who, as a rule, held their lands from over-lords or from the King himself, subject to a variety of services which were not of a servile kind. For centuries they were a powerful class, and resisted the encroachments of the territorial magnates. Eventually, however, they disappeared as a prominent factor in our rural economy. The copyholders were another order of cultivators. From the historical point of view these are more interesting than any others. They were largely recruited from the villeins, who were a grade above the serfs, and held their lands under servile tenure. Subsequently personal services were greatly modified or commuted into annual money payments. This was after the "Black Death," and the peasants rebellion, under Wat Tyler.

So long as the copyholder continued to discharge the stipulations of tenure, the lord was not entitled to divest him of his estate. But eventually he, too, was so mulcted in fines and in heriots (a tribute which the lord demanded on the death of a holder), that in time very many of the holdings had to be surrendered to the lord, to whom it was now worth many times the lawful rent which the copyholder had been paying. Besides these classes, there was the great mass of peasantry, nearly all of whom had land or rights in the land of some kind.

The various revolts that have occurred from time to time; the enclosing of common lands and their usurpation by the wealthier classes; and the schemes for the reform of land ownership, and for the re-inheriting the people, are ably discussed in these pages; but we can only refer to them. The readers should obtain the book, now so cheap, and enjoy and study it for themselves.

Hollies.

Following upon the article on "Hollies for Hedges" on page 406 last week, we herewith reproduce a reduced plan of a splendid bed of Hollies at Alnwick Castle, Northumberland. The bed is 72ft in diameter, and contains many choice specimens. In the centre (1) is a fine tree of Golden Queen Holly, surrounded by a neat edge of Ivy (2), and common Box (3), which also forms the defining line to the crescents as marked in the plan. The latter are planted up thus:—In opposite pairs,



Plan of a Bed of Hollies.

4, 4, with Golden Queen; 5, 5, with Silver Queen; the other four (6) with Scotia, a very hardy, dark green variety. The central space (7) and the spaces between the horns of the crescent are filled with small, white, stone chippings, which brings the whole design into bold relief, the spaces (8) occupied with grass, neatly kept, having the same effect. The Hollies are kept dwarf by constant attention and periodical clippings, and during the winter, especially, they present a most pleasing appearance. Messrs. Clibrans, of Altrincham, have the largest and best stock of Hollies that we have seen.

Entomological Notes.

The Tiger moth.

A correspondent sends a caterpillar of the Tiger moth (illustrated)—*Chelonia caja*—which is common in gardens and in uncultivated places. Its favourite food plants in the latter



The Tiger Moth.

spots are Docks and Dead-nettles. In the garden the caterpillars are prone to attack any succulent vegetables, and sometimes fruit blossom buds as well. The moth has acquired its tigrine name from the markings of the upper wings, which are usually adorned with blue-black spots on a red ground. The head and legs of the caterpillar are black, and the body is covered with long silky hairs.

Alpine Plants and Shrubs.

(Concluded from page 400.)

Ramondia pyrenaica does well in mossy fissures filled with well-drained peaty earth, in shade.

Potentilla (Cinquefoil) includes some species, such as the white Cinquefoil, *P. alba*; alpine Cinquefoil, *P. alpestris*, with yellow flowers, worthy of a place on rockwork. *P. splendens* is suitable for clothing dry banks.

Saponaria (Soapwort), a genus of the Pink family, contains *S. caespitosa*, forming dense spreading tufts, admirable for rockwork in mixed loam, leaf mould, sand, or shale. Also *S. ocymoides*, excellent for clothing the most arid parts of rockwork, particularly where a drooping plant is desired.

Saxifraga (Saxifrage) embraces more truly alpine species than any other genus, and of them *S. Burseriana*, *S. Camposi*, *S. cotyledon* var. *pyramidalis*, *S. longifolia* ("the Queen of Saxifrages"), *S. oppositifolia*, and its vars. *alba* and major, *S. splendens*, and *S. (or Megasea) purpurascens*, are good.

Sedum (Stonecrop) contains a number of species. Wall Pepper, *S. acre*, grows on walls, thatched houses, and rocks; as also does *S. album*. The other species will grow in similar positions; indeed, they are among the commonest of garden plants, few being more accommodating. *S. lydium* is very fine where it gets plenty of moisture. When exposed to heat and drought it becomes almost red in colour.

Sempervivum (Houseleek) is well represented in the Cobweb Houseleek, *S. arachnoideum*; Hen-and-Chicken Houseleek, *S. globiferum*; Common Houseleek, *S. tectorum*, also *S. arenarium*, *S. calcareum*, *S. fimbriatum*, *S. montanum*, *S. californicum*, and *S. Laggeri*.

Silene (Catchfly), a genus of considerable extent, of which may be named the Cushion Pink, *S. acaulis*, a native species with several varieties; Alpine Catchfly, *S. alpestris*, from the alps of Europe, and *S. Schafta*, the latter being late flowering. The British *S. maritima* and its varieties, with *S. Elizabethæ* and *S. pumilio* from the Tyrol, are good rock plants.

Plumbago Larpentæ is a first-rate ornament in a sunny and warm position, flowering in September when alpine flowers are scarce. Located above the upper edges of vertical stones it is singularly beautiful, continuing until frost.

Salix or Willow, of the dwarf creeping species, *S. herbacea*, *lanata*, *reticulata*, *retusa*, and *serpyllifolia* are interesting, especially *S. reticulata*, leaves strongly veined, cutting beneath, and *S. serpyllifolia*, densely creeping, growing well in ordinary garden soil or moist peaty loam among stones.

Santolina alpina forms dense mats close to the ground, and bears yellow button-like flowers on long slender stems. *S. incana* forms a small silvery bush, with numerous branches and narrow leaves, and may be used effectively from its neat habit and silvery hue on slopes of rockwork. The Lavender button, *S. chama-cyparissus*, and its variety, *squarrosa*, are useful for relieving the monotony of green on rocky slopes and banks. They thrive in sandy loam in dry sunny fissures or well-drained slopes.—G. A.

Protecting the Birds.

The Watchers' Department of the Royal Society for the Protection of Birds represents perhaps the part of the society's work most interesting to scientific ornithologists and to lovers of wild Nature. The need for it is not brought home conspicuously to the multitude, says a writer in "Bird Notes and News," as for example, is the need for some restriction on the plumage trade by the sight of the furiously-feathered head-gear which is forced on public notice; or as the call for some effective check upon bird-catching is made obvious by pathetic and dismal glimpses of bird-life in dealers' shops.

But if the necessity is not thus made evident, neither does the work suffer from that callousness of outlook which custom and familiarity breed in everyone. Some of the birds that are special subjects of watchers' protection are little more than names to most persons, and are rarely if ever seen by many of their best friends. The majestic white-tailed eagle, with his lofty eyrie in the remote Shetlands; the bold skua, dwelling among the mountains and mists of the wildest Highlands; the dotterel, driven by persecution to the moors and fells of Scotland and Westmoreland; the bearded tit, rarely emerging from its none too safe retreat in the Norfolk reed-beds; the dainty little phalarope, nesting by a few lochs and loughs far away from the abodes of men; the sombre raven and the handsome chough, haunting some well-nigh inaccessible cliff-precipice; the roseate tern, jealously guarding its eggs on a remote shingled shore; these and others are, as living birds, no more intimately known to the great majority of persons than are the trogons and rupicolous, whose bodies gleam among the sheaves of the plume-hunters' harvest in Houndsditch warehouses. But, though unseen and unknown in their wild dwelling-places, they appeal forcibly to the imagination as fellow-denizens of our island home; for the romance of Nature has always appealed to men of British race.

Such being the case, it might be supposed that our rarest birds would be safe in the wilderness and the solitary places where they have taken refuge from civilisation; and that the only intruders on their peace would be men who themselves know the fascination of solitude, and whose eyes would follow with the sympathy of kinship the buzzard circling above the forest, the osprey poised over the mountain tarn, or the peregrine soaring among wind-lashed headlands. Unfortunately, however, greed appeals more strongly than romance to a considerable number of persons, and wild life then becomes merely something to harry and despoil for personal gain. The appeal just issued by the watchers' committee of the R.S.P.B. draws attention to the growth of that class of collectors who, under the name of British ornithologists, are among the worst enemies with which British ornithology has to reckon—"naturalists" who, in place of seeking to preserve the grandest forms of British bird life, ceaselessly endeavour to obtain rare "British-taken" eggs and birds, though at the price of the ultimate extinction of species. The high prices paid by such collectors for authenticated specimens are obviously a direct incentive to egg-stealing and bird-taking on the part of keeper and shepherd and dalesman, in defiance of the law for bird protection.

For sympathetic and outspoken articles on this subject, and for the publication of the appeal in a large number of influential newspapers, bird-lovers may well be grateful to the Press, and the society has also to thank the friends of bird protection who responded to that appeal. Other co-operation is likewise essential. In the first place, that of county councils in the scheduling and all-the-year protection of rare species. And here may be noted the importance of protecting these birds even in districts where they may be little likely to occur; since to apply for such protection only when and where a rare species is found established is likely enough to bring about the very thing feared, by advertising the bird's presence. The aid of landowners and tenants of sporting rights is important; and the support of magistrates in dealing with offenders is necessary if convictions are to produce any sensible effect. So long as the keeper who shoots a harrier is allowed to traffic in his specimen, and the man who shoots a bittern because he "didn't know what it was" gets off with a nominal fine—both of these are recent cases—the law will not have much attention, and the work of watchers will be proportionately more difficult.

Trade Catalogues Received.

Charles Clarke and Co., 16a Bevis Marks, St. Mary Axe, E.C.—*Knap-sack sprayers, disinfecting machines, &c.*

Dickson, Chester.—*Summer bedding and border plants, Dahlias.*

Keynes, Williams and Co., Salisbury.—*Dahlias.*

Thos. S. Ware, Ltd., Feltham, Middlesex.—*Begonias, Dahlias, &c.*

Young Gardeners' Domain.

* * The prize is awarded to "H. E. D.," Brooke Gardens, Brooke, Isle of Wight:—

Weather Trials.

A merry Christmas to you! Such was the greeting I received on April 25; and, indeed, it seemed quite appropriate, for with nearly a foot of snow on the ground and more peppering down, it required but a slight stretch of the imagination to fancy we were at the end of the twelfth, rather than the fourth month of the year. So far this has been a very trying Spring for vegetation. Instead of the balmy breezes, of which the poets sing, we have had keen nor-easter's, and in place of the gentle showers, hail storms and snow blizzards have raged. As we turn out in the morning and trudge through the snow, we cannot but admire the snow-clad hills and the trees dressed in their pure robes; but as we enter the garden our thoughts are diverted into another channel, and we look at the scene from an intensely practical point of view. The fine rows of early Peas on which we had looked with pride are lying prostrate and bruised between the sticks. We turn from these to the 'Mums, and find them completely buried. Truly they are having "hardy treatment" with a vengeance. Anxiously we release them from their snowy bonds, hoping to find them safe. But alas! many a plant has been stopped in an unorthodox way, and one could almost weep at their forlorn appearance. Later on, as the snow disappears, we see the havoc that has been wrought amongst the Spring bedding, and it is to be feared that many a bright display must have been almost ruined.

We also have to mourn the partial destruction of some grand specimen *Laurestinus*, which fell beneath their heavy burden of bloom and snow. Fruit growers must have cause for grave concern, especially in the early districts. Fruit tree planting on a larger scale has been advocated a good deal of late, but with our climate so fickle it is a question that demands serious cautious consideration. Once again we have had clearly demonstrated the important part which the weather plays in the success or otherwise of our labours.—H. E. D., Brooke, Isle of Wight.

Change.

Change is the briefest description of the everyday events of living subjects. Nature in her many forms is ever changing. Nature equips her subjects with many wonderful devices in order to adapt themselves to change of conditions. Take the Vine: in its natural habitat it would be quite unable to develop its fruitful qualities if it were not provided with means to enable it to climb, i.e., tendrils, and so receive the full benefit of air and sunshine. The cactus is another instance. In its home amongst the dry arid rocks it is provided with thick succulent leaves to enable it to exist. Every living subject is continually passing through a process of change to a greater or lesser extent. To be successful in the cultivation of choice plants and flowers the greatest care must be given not to check or hinder the plants' natural requirements.—J. W. S.

Pot Roses.

The first thing the intending cultivator of pot Roses has to consider is the selection of some good varieties, and should he have seen some fine batches and taken the trouble to notice a few of the best kinds, the task will be easy. Passing one's eye over a batch of upwards of a hundred, one is struck with the beautiful h.p. section, Dr. Andry, Mrs. S. Crawford, and Violette Bouquet, their erect stems crowned with splendidly-formed buds. The varieties decided upon, the compost for potting must be the next consideration. Some good turfy loam, broken mortar rubble, and burnt garden refuse, with the addition of some half-inch bones, constitutes a good potting mixture. Eight or nine inch pots should then be crocked, a few half-inch bones placed over them, and potting proceeded with, making them moderately firm. When potted they should be placed outside and be given a thorough watering. This part of their culture will need careful attention until they are established. In the late autumn they will need a position where the atmospheric conditions are under control, little or no water being necessary. At the beginning of December they should be pruned hard back, be given a thorough syringing or washing with Gishurst's compound, the drainage thoroughly overhauled, and a slight top-dressing of soil given, similar to the potting mixture. They should then be watered and given a temperature of 50deg, or the early Peach-house will suit them admirably. They will soon show signs of activity, and should be given a position near the glass to prevent, as far as possible, the growth from becoming drawn, and the temperature may be slightly increased. At this period mildew often makes its appearance. If so, the plants should be lightly dusted with yellow sulphur, care being taken to avoid draughts as much as possible. Plentiful supplies of

cow manure can be given, and half the batch be taken to a slightly cooler temperature, thus ensuring a longer supply of flowers. However small one's conveniences are, pot Roses form a welcome addition during early spring. Once potted, they will stand for some considerable time if the drainage is overhauled and a good top-dressing given now and again.—F. G., Lydhurst.

Vegetables for Forcing.

During such unseasonable weather as we have experienced during last year and the early part of this, such vegetables as Broccoli, Brussels Sprouts, and others of the Brassica tribe suffered severely, and a gardener has to be prepared for such conditions, and to have something to replace the defects. The three vegetables I refer to are Seakale, French Beans, and Asparagus. The culture I will briefly state, which is quite simple, and requires little time. Seakale can be forced with little trouble, and can be had in a few days if carried out as mentioned. Have some 12in pots, with some crocks and rough leaves in the bottom, and fill with a mixture of loam and leaf soil; or old Chrysanthemum soil answers the same purpose. Place six good roots inside, and set a pot of the same size turned upside down over it, and cover the drainage hole to exclude all light. Allow a bottom heat of 65deg to 70deg. For French Beans use a compost as mentioned above, and employ 7in pots filled to within 2in of the top, and place five or six Beans in a pot. Stage them in a temperature of 65deg to 70deg. Successional batches should follow in the course of a fortnight to keep up a supply. Canadian Wonder is one of the best for this work. The plants should be kept in a moist atmosphere, and be syringed freely, as red spider will soon attack them. As to Asparagus, well-established crowns should be selected, and be placed in a mixture as mentioned on a bed in a warm pit, with a bottom heat of 65deg to 70deg, and exclude the light. The soil should not be allowed to get dry, and should be sprayed with a syringe. Under these conditions I have seen a good supply kept up at a time when it is most needed. Rhubarb does very well under the same treatment.—P. I. C.

The Recent Weather.

Are the seasons changing? Ask an old sage, and he will say they seem to be, and that he is "afeced there's something wrong." The first impulse would be to smile at his remarks, but in the face of the recent weather it requires a great effort to dispel the air of pessimism which pervades the atmosphere. That the seasons are not changing, we know by Nature; she is an infallible authority. The coming and going of birds are the signs of the year. With their coming there is the advent of spring, and their going the advent of winter. What, then, is the meaning of it all? I think I will leave the answer to our wiser readers.

The only answer we could make to the recent weather was to wear our winter apparel, and face the blasts with as cheerful a face as possible. Perhaps it was the Gulf Stream playing us a trick; or probably they had too much to say in Manchester! However, with the air purified there now, let's hope the cruel weather is at an end. Here, within hail of May, we get snow and rain. Fill up the bunkers with firing material, and "push" the fires! Counteract the effects of the elements! Protect your frames and as much of the garden crops as possible; and go on with a cheerful countenance.—S. G., Co. Galway.

Herbs.

Herbs should form a chief feature in almost every kitchen garden, and they require good cultivation and attention if they are to be a success. A border that is facing the west will suit them admirably. It should be well dug and manured; trenching will be better, especially if Parsley is to be grown there. I prefer to have all the herbs on the same border, with the Parsley the whole length of it for an edging, then it can be more easily picked without going upon the ground. I only intend to deal with a few of the more important kinds that are used by cooks almost daily. I think the most indispensable is Mint. It can be increased in several ways, as division of the roots, by seeds, or by cuttings. I prefer the latter. If the cuttings are taken off just below the ground in the Spring, when they are 3in or 4in high, and planted in rows where they are to remain, about 6in between the rows, and 3in or 4in from plant to plant, they will do well. It will be found that a good Mint-bed will be obtained in a very few weeks. Parsley hardly needs mentioning, it is so extensively grown. It requires deep trenching and rich soil. Seed should be sown at intervals, and the seedlings are thinned out to 1ft apart. Sage, I think, comes next in merit. It can also be grown from seeds or cuttings. The latter may be taken in the early summer and inserted under a hand-glass, where they will easily root. Afterwards plant out not less than 1ft apart. Thyme is also in constant demand for culinary purposes. Seed should be sown in April, or division of the old clumps in March or April

will answer. Lemon Thyme is best propagated by pegging the branches down and covering with soil. Tarragon will need a little protection during a severe winter. It is propagated the same as Thyme, but succeeds best on a light dry soil. Marjoram, both the Sweet and Pot, ought also to be included. Sweet Marjoram can be sown annually about March or April. Fennel, Basil, and Chervil are also sown annually. If herbs are required for winter, they must be cut while in bloom, and be hung up in a dry shed. It will be best to keep the annuals at one end of the border, and the perennials at the other.—W. E., Chertsey.

Seed Sowing.

The first thing to be considered before sowing seeds is to see that the soil is in a proper condition. We do not sow seeds at certain seasons just as a matter of form, but because seeds must be sown when the temperature of the soil is suitable. It would be folly to sow the majority of our seeds while the soil is in a cold wet state. Advantage should be taken of a few nice fine days to prepare the ground, and when it is sufficiently dry it should be broken up finely, then be well firmed and raked over, so as to leave a nice level surface. The usual method of sowing is to make a small drill with a hoe or some other suitable tool; but in the case of some of the finer seeds it will be found better to sow them broadcast, and afterwards rake them in. The hand should be kept close to the ground whilst sowing, so that the seed will go where it is intended, and not be blown on to another part where it is not wanted.

Seed should always be covered thinly, as it requires a little air to assist germination, and if too thick it is impossible to expect good results, also making the thinning more difficult. After sowing the ground should be fairly well firmed, so that the young seedlings can obtain a firm root-hold when they start into growth. Thinning can always be done as soon as the seedlings are fit to handle, as, if delayed, they begin to smother one another, are liable to damp off, and become more difficult to handle. When thinning the size of plant should be taken into consideration, as the beauty of a plant is often spoiled by allowing the seedlings to remain too thick. If the seedlings can be reached without much treading on the ground, a nice showery day is best suited for this operation.—T. HUNTER, Holker Gardens, Cark-in-Cartmel, Lancashire.

The Wonders of Plant Life.

When we really go into the study of plant life, what an interesting study it is. Until we have made a start at botany, and have gone into details, our interest does not commence. Look at the leaf, for instance, and examine its wonderful powers, especially as an organ of respiration, acting to the plant as the lungs do to a man. Then there are the sensitive plants, especially *Mimosa pudica* and *M. sensitiva*. If we carefully watch their movements we marvel at the mysterious powers they possess. Then we have those wonderful flowerless plants which are often overlooked and despised—fungi. What a wide range for study they hold out. We find very little written on the subject, yet it is very interesting. No doubt many of us think that it would be waste of time to study such small subjects, but even if the knowledge we obtained was limited, it would prove useful. Of course, we study *Agaricus campestris*, the common Mushroom, because it is an edible fungus, but the others are well worth studying also.

Then we have the insectivorous plants. These open up a vast field; in fact, there is plenty of scope for increased investigation into most subjects found in vegetation. There are many things which we could find out, and they would naturally surprise us, although perhaps such things appear simple. This world contains many things that are both beautiful and interesting, and the greater our knowledge of the various subjects in plant life, the more interested we become, and we shall find, I feel sure, that to us, as young gardeners, the knowledge will be valuable.—ALBERT R. GOULD, Welbeck.

Schedules Received.

Cardiff and County Horticultural Society; secretary (in succession to the late Mr. Gillett), Mr. Maurice Bailey, 24, Duke Street, Cardiff. The flower show will be held on July 22 and 23.

Stafford and District Horticultural Society; secretary, Mr. J. Stoney, 165, Corporation Street, Stafford. The schedule of prizes for the first annual exhibition, to be held on Saturday, July 25, at the Siemens' Sports Grounds, Stafford, has been issued. The society has nearly 200 members, and has every prospect of success.



Fruit Culture Under Glass.

FRUIT TREES IN POTS.—The early fruits are swelling freely, and will require liquid manure freely, with occasional supplies of a good fertiliser. Thomson's Vine Manure is excellent. Close stopping twice or thrice a week will be required; and in doing this work it is well to regulate the growth, so that the fruits are freely exposed, and the crop distributed as much as possible. Trees cropping poorly will not require so much fertiliser, but much may be done to build up good wood for another season. Later trees with succession crops should be thinned, and badly placed fruits, or those at all thick, may now be removed. These trees may now be given more warmth; at the same time they should be kept quite clean.

PINEAPPLES.—Plants in fruit will require a liberal temperature, a bottom heat of at least 80deg to 90deg, and top heat 70deg to 80deg by day, and a liberal rise by sun heat. Plants in small pots benefit by liberal waterings of tepid liquid manure or guano, but do not allow the fruiting plants to get at all soddened, as this will arrest the swelling. Once they lose root, it is difficult to get them into a healthy state. Plants that are robust should be lightly sprayed over with the syringe at closing time in fine weather, closing early to get genial warmth.

SUCCESSIONALS will be in various stages. Those repotted some weeks ago should have made good progress, as the roots will be working freely, and assistance may soon be given in the shape of clear soot water in a tepid state. Plants approaching the flowering period should be kept drier for a time, and these should be kept free of sucker growths.

CHERRIES.—The trees will now be making rapid progress, having gone through the stoning period, and as these fruits often set very thickly, it is well to go over them, removing badly placed fruits, and thinning the clusters. Feeding will be desirable, and here so much depends upon the crop and age of the trees. If the latter are at all gross, it is not desirable; but with healthy trees bearing freely a fertiliser may be given freely. Sulphate of ammonia is a good food, given in a weak state, say 1oz to the gallon of water, well watered in. At the same time ventilate freely in fine weather, leaving a little air on the top ventilators at night. The Cherry forms roots near the surface, and these should now be working freely. Afford the border a mulch of spent manure. Black aphid is one of the most troublesome pests these trees have to contend with, and XL All should be used as a vaporiser, and be repeated till the pest is killed. Syringing overhead early the next morning after each application. As the fruits colour, cease syringing; ventilate freely; and when nearly ripe give a slight shade, and the fruit will keep good for some weeks.

BANANAS.—Though not much grown in this country, the plants are of easy culture, given a warm temperature and ample sustenance. Now is a good time to pot up suckers for next season's fruiting, and I prefer the variety Cavendish for its dwarfness, rapid growth, and good quality. Strong suckers, placed in 16in or 18in pots, only partially filling the pots at the time, and top-dressing with rich soil later on, will do well. The plants like a good fibrous loam, a liberal addition of bone-meal, and decayed manure, and the whole well rammed. As the roots fill the pots, feed freely. A temperature of 60deg to 70deg with a liberal rise by sun heat should be given, and they fruit much sooner if a little bottom heat can be given.—G. W., Brentford.

The Flower Garden.

BULBS.—As the blooms of the Hyacinths, Tulips, and Narcissi fade they should be removed, or many of them will produce seeds, and thus weaken the bulbs. Their removal also imparts a more tidy appearance to the beds and borders. Only the individual flowers should be removed from the Hyacinths, leaving the flower stalks. By placing the hand round the stalk immediately below the flowers and drawing it upwards, the bells are readily stripped off. In a like manner only the blooms of Tulips and Narcissi should be taken off, just below the seed-pods, leaving the flower stalks. Continue to edge, weed, and hoe the beds to encourage good growth. Lift and burn any diseased Tulips as soon as detected. These are, unfortunately, more numerous than usual with us this year.

BEDDING PLANTS.—A great deal of attention is necessary at the present time in preparing these plants ready for planting out. The watering of them is also a considerable item. Fuchsias, Ivy-leaved Pelargoniums, &c., require staking. Large specimens will be better overhauled now and got in shape, putting in new stakes where required, and generally smartening them up. The points of the shoots of many plants must be removed to induce short sturdy growth. In sheltered positions we have stood our Marguerites, Cotyledons, and Centaureas. It is usual to place "Geraniums" out the beginning of May under a wall facing south or in a skeleton frame. The weather, however, will have to improve considerably on that experienced during the past week before we attempt it this year.

SOWING SEEDS.—The following plants, which are treated as biennials, may be sown early in May. (Sow the seeds in drills in the reserve garden, or on a piece of ground set apart for them in the kitchen garden)—Canterbury Bell, Sweet William (including Sutton's Pink Beauty), Wallflower, double Daisy, perennial Candytuft (*Iberis sempervirens*), Polyanthus, Alyssum saxatile, Pansy, Myosotis, Gaillardia, Coreopsis grandiflora, Campanula persicifolia, and Arabis alba.

BEDDING CALCEOLARIAS.—It is advisable to plant these in positions where they are to flower early in May. If well established before the hot weather, they will be found to do much better. In some gardens this work cannot be done till the spring-flowering bulbs and plants are removed. To obviate this disadvantage as much as possible, select damp positions for them, shaded from the midday sun.

ANNUALS.—The seedlings raised in heated pits or frames, and pricked off in shallow boxes, should be accommodated in cold frames as soon as nicely rooted in the new soil. Heat is very detrimental to the plants after a certain stage, causing them to grow long and lanky. On bright days the frame-lights can be pulled off. Pentstemons and Antirrhinums, raised from seeds sown in autumn or in January, can now be planted in their flowering quarters, or failing this, grow them on a spare piece of ground till the beds or borders are cleared of their present occupants.—A. O., Kew, Surrey.

The Kitchen Garden.

OUTDOOR TOMATOES.—If the plants which are to be planted outside have not already been placed in cold frames, this should be done now. If the plants are still in 3in pots, it is yet time to transfer them to 5in. It is not safe to plant out till quite the end of May, and by that time the plants in the smaller pots will have become badly pot-bound, and would not make a good start in consequence. The frames in which the plants are placed should be heavily covered at night in order to keep out frost.

BEEETROOTS.—The main crop may now be sown. It is a mistake to sow the long-rooted kinds too early, as they become too large for general use, as well as not being of so good a colour. It takes a little longer to sow the seed in holes made by a dibber at proper distances, but it well repays in the end. The seedlings are more readily thinned, and there is less danger of overcrowding: three or four seeds dropped into each hole will be sufficient.

PEAS.—Another sowing can now be made. On light dry soils these should be very thoroughly cultivated, an abundance of well decayed manure being used. Remove the soil and substitute this by the manure, on which return the soil. Leave a slight furrow to catch the rain. The best Marrow-fat varieties should be chosen for the present sowing. Place sticks to those coming through the soil as soon as possible, and if sparrows are troublesome, black cotton should be drawn along the sides of the sticks quite thickly.

SPINACH-BEET.—This has been one of the most useful vegetables in the garden during the past winter. It has come through the sharp frost and keen winds unscathed, and has provided an unbroken supply of useful leaves, which has been much appreciated. A sowing should now be made, by preference in small pots, but where this is not convenient, sow thinly in drills 18in apart; and as soon as the plants are large enough to handle, thin these to 12in apart. The thing is to keep the plants growing fast the whole summer, in order to have large, well-developed plants by winter.

RUNNER AND FRENCH BEANS.—It is now time to make a planting of these. The Scarlet Runners ought to be generously cultivated by taking out a trench similar to that for Celery, adding a liberal quantity of well-decayed manure and wood ashes. A little soot should also be added. A second planting can be made some ten days later; and the dwarf French Beans may be treated similarly. In each case leave a slight depression on the top of the trench to catch as much of the rain as possible.—A. T., Cirencester.



All Correspondence relating to editorial matters should be directed to "THE EDITOR," 12, MITRE COURT CHAMBERS, FLEET STREET, LONDON, E.C. Persons sending manuscript or photographs, when not specially requested by the editor, and making no demand for remuneration, are presumed to solicit publication without payment. In order that no misunderstanding may arise, and in order to secure the return of their contributions, contributors should state the fact that they expect remuneration, and in all cases, even when contributing voluntarily, correspondents should enclose a stamped envelope if they expect their enclosure to be returned.

APPLE-GROWING AREAS OF THE WORLD (Fruit Grower).—Our correspondent inquires, "What are the chief Apple-growing areas of the world, and their approximate average annual production?" We doubt if the statistics are available. We cannot answer the latter part of his question; but we would refer him to the Emigrants' Information Office, Whitehall, London, which publishes pamphlets setting out the geographical and industrial particulars of the various British colonies; while the Board of Agriculture, 4, Whitehall Place, S.W., might possibly be able to assist. Tasmania, New Zealand, Nova Scotia, California, Oregon, and British Columbia, we believe, are the chief Apple-growing areas of the world. Have you the Report of the Departmental Committee on the Fruit Industry, 1905?

OIL POTS AMONGST FRUIT TREES (N. S.).—The oil pots is an American idea, and we assume the oil pots are those usually used for paraffin oil or other purpose, but of the way in which they are used we have no particulars. Possibly almost any kind of old tins, such as those used for condensed milk and canned fruits or vegetables, could be used for the purpose, they being partly filled with paraffin oil and some tow, old rag, or other material, placed in so as to act as sort of wick, these being placed at short distances apart on the side of the trees from which the wind blows at the time and so distant as not likely to damage them by the fumes and the heat. This is acting on the same principle as the smother fires sometimes adapted on the side of the fruit plantation grounds next the wind, the fires being started at daybreak, which is when the worst mischief arises, followed by the sunshine early. The oil pots are expected to act similarly, they being lighted at daybreak, warming the atmosphere, preventing the congelation of the air moisture, and having the blossom or buds and growth so free from frost as not to be damaged by sudden thawing.

DISEASED SPURS OF APPLE TREE (N. S.).—The spurs are affected by canker. Injuries from frost, hail, improper and excessive pruning, as well as neglect of judicious manipulations, and from insects, such as mussel scale, woolly aphids, all come under this common appellation. Such injuries are quite distinct from those caused directly by canker fungus (*Nectria ditissima*), yet the abrasions of the bark, often give the fungus its opportunities for the germination of its spores, and the pushing of its germinal tubes into the tissues. In respect of repression, infested parts should be cut off or cut out with a sharp knife, and gas tar, or preferably Stockholm tar (if too thick, thinning with paraffin oil, so as to be applied by a stiff brush), be placed on the wounds. The parts removed should be burned. To check the fungus, the trees should be sprayed in autumn, as soon as the leaves are all down, with a solution of sulphate of copper, 1lb sulphate to twenty-five gallons of water. The object of this is to destroy the fungus in its conidia and spore stages. This may be effected, where the trees are small, by a knapsack machine, and upon large trees with the help of a ladder. The spraying should be repeated in February, always while the trees are quite dormant, or before the buds commence swelling. Sulphate of iron, dissolved in warm water, at the rate of 1lb to a gallon, may be used instead of the copper sulphate solution. To encourage free growth in the trees, and enable them to better contend with the fungus, they should be dressed with Tonk's canker cure, viz., superphosphate of lime, 35lb; nitrate of potash, 21lb; nitrate of soda, 28lb; sulphate of lime, 28lb. Mix and apply at the rate of 1lb per square yard in spring and autumn, from the stem of the tree outwards to a foot or more beyond the spread of the branches. This has the effect of acting on the mycelium of the fungus, so as to retard its growth if not actually killing it, for the trees so treated make headway against the fungus, and occlude the wounds more speedily, usually attaining to good health and fruitfulness.

VIRUS FOR RATS (J. H., Honiton).—Yes, this Danyss virus, which is not a poison, but destroys rats and mice, would act perfectly upon rats in a drain. It is procurable in tubes (2s.) from Danyss Virus, Ltd., Sussex House, Leadenhall Street, London. Kindly mention this journal.

RAISING SEEDS (C. S.).—You will have no difficulty in keeping pure stocks of the hardy annuals and perennials you name, but Begonias and Petunias are sportive, and you had better sell the seeds in mixture. Balsams come fairly true if large batches are grown and the plants are grouped in their respective colours. The nearer the flowers approach the double form the better will the quality of your strain be. You may obtain the seed from any part of the plants that yield it. You will have no difficulty in the case of Peas; but Broccolis, indeed all plants of the Brassica family, can only be preserved pure by growing the varieties in large batches, and at wider intervals than your limited ground affords.

INSECT INJURING APPLE BUDS (East Anglia).—The insect is the Apple Blossom Weevil (*Anthonomus pomorum*), which is very small, only the fourth of an inch long and the eighth of an inch in breadth. It is reddish or chestnut brown, occasionally almost pitchy. The wing-cases have pale marks upon them below the middle, and there is conspicuous white mark, or scutellum, at the base of the wing-cases. The example on the glued paper was a very small one, almost unrecognisable. In ordinary seasons the weevils do not appear until the weather is mild, and then the damage is of a slight character. But should the weather be cold and changeable, as this spring, the flower-buds are slowly developed, and the weevils consequently have time to lay their eggs in full complement, and the period of hatching is accomplished before the flowers are fully evolved. The action of this weevil upon the fruit blossom of Apple and Pear trees is such as to be mistaken for the effects of frost, when the petals have become brown or rust-coloured, as in your examples.

TRANSPLANTING ASPARAGUS (J. G.).—If the ground is well stirred, as you propose, to a depth of 2ft or 2ft 6in, and ten cartloads of manure are added and well incorporated with the soil, care being taken to keep the good soil on the top, not burying it at the bottom of the trenches, nor bringing much, if any, of the poor soil to the surface, it ought, if of a friable nature, to grow good Asparagus. It is well not to move the plants until they are beginning to grow, and if the shoots have pushed a few inches, it will be an advantage rather than otherwise. Lift them carefully, preserving all the live roots possible. As the plants are ten to twelve years old they will probably have a number of decayed roots. It is not necessary to lift or preserve any except the live crowns with their shoots and buds and all the live roots attached. Stretch a line where you wish the rows to be, and take out a trench on both sides with a spade, sloping outwards from the line about 9in wide and 6in deep at the extremities; this will give a ridge which should be knocked down where the plants are to be, so as to form a seat, and so deep that the top of the crown will be level with the top of the ridge. Dispose the roots evenly in the sloping cuts on both sides of the ridge, and cover them with some fine rich soil. Cover with the soil taken out, and place it over the crown to the depth of 2in or 3in. Mulch between the rows and over the crowns with a couple of inches of lumpy manure, the remains of spent Mushroom beds, or partially decayed leaf soil. After the plants are in free growth liquid manure may be given between the rows, and continued at weekly or fortnightly intervals up to early September. The first growths will perhaps be comparatively poor, being crippled by the transplanting and consequent disturbance and loss of roots; but after the plants become established they push a strong second growth, and to throw the full vigour of the plants into them the first growths should be cut away when the second are well advanced above ground or beginning to "feather"; and a reservation should be made of two or three of the strongest about midsummer, the other being cut away. If the plants are large more shoots may be left, but crowding is a great evil, and one of the chief reasons why the "produce" is so small as to please nobody. With attention to these matters, and to staking if necessary to prevent damage from winds, there is no reason why the plants should not succeed and afford good heads for cutting next spring.

NAMES OF PLANTS.—Correspondents whose queries are unanswered in the present issue are respectfully requested to consult the following number. (H. R. C.).—*Æschynanthus speciosus*. (Regular Subscriber).—Your *Hollies* are: 1, *laurifolia*; 2, *Hodginsii*; 3, *senescens*; 4, *argentea marginata*; 5, *aurea angustifolia*. (A. W.).—The flowering shrub is *Forsythia viridissima*. We cannot recognise the *Thymme*. Your only certain mode of establishing a true stock is by inserting slips from the plants in your possession. (T. R. G.).—No. 1 appears to be an unhealthy spray of *Skimmia japonica*; 2 is a *Veratrum*, but no one could determine the species from the imperfect specimen sent; 3 is *Farfugium grande*. (M. M.).—1, *Abies Douglasii*; 2, *A. orientalis*; 3, an *Aconitum*, probably *A. versicolor*.



A Farmers' Club.

We had the privilege and pleasure of being present at the annual dinner of a district farmers' club last week. It represented but one branch of a county organisation, but if there are many more branches like it, the parent tree must be full of vigour.

About 100 farmers, including a few strangers and others interested in matters agricultural, sat down to a real good farmers' feed, the chief features of which were the presence of typical joints of home-grown meat, roast and boiled, and well cooked, and the absence of entrées. But more conspicuous still was the unanimous way in which the members of the club supported its officers. There was not a wrong or discordant note or voice of complaint. The M.P. for the County Division was present, and showed by a sympathetic speech that the club had in him an earnest supporter in Parliament should the occasion arise.

The club had its origin at a meeting of five farmers called together at the house of the present chairman, and its object in the first place was combination to defeat individual cases of injustice to farmers on the part of powerful organisations, such as railway companies and others. It has been matter for general comment for a long time that almost every industry except agriculture has had its defensive organisation, and has also had its accredited representatives in Parliament. It may be pointed out that agriculture has always been well represented in Parliament. So it has, but it has always been a landlords' representation, and has almost altogether belonged to one political party. We noticed at this dinner, faces representing very divergent views on politics, and it is a most hopeful sign that farmers are at last able to combine and sink individual differences and jealousies for their own common good.

We understand that although this club is in its infancy, there is already a substantial reserve fund at its disposal wherewith to fight any legal battle which is desirable on behalf of an ill-used member. It is remarkable as an illustration of the effectiveness of combination that hitherto every move made by the club, or by its solicitor, has had the desired effect at once, and no case has been taken into court. As one member observed, there seems to be a great virtue in the use of club official letter-paper with a printed statement of the number of members, and names of officials.

We believe there is a cattle dealers' association in Yorkshire which has a reserve fund of £50,000, and which has a great influence over any unfriendly disposition on the part of railway companies. The member for the district pointed out how very necessary it is for milk producers to combine for self-protection. Not only are foreign milk producers favoured as regards steamship and railway rates, but their products are not subject to the severe tests which apply to the home-grown article.

At present, railway companies will accept no responsibility for the delivery of milk delivered to them in churns. The milk goes at owner's risk, and if it reaches its destination short in either quantity or quality, the sender suffers the loss. A farmer quite recently consigned some milk by rail. After delivery it was inspected and found to contain added water. A prosecution followed, and the farmer was heavily mulcted in fines and costs, although the magistrate who heard the case expressed sympathy with the defendant, and absolved him from moral responsibility, although the technical offence was found proved. The experience of another farmer is that short measure is often discovered, but where the leakage takes place is always a mystery. One churn of his disappeared, milk and all.

Similar occurrences are constantly taking place in connection with Potatoes. Consignments sent loose are frequently found very short of weight on delivery, but whether the loss occurs on the railway during transit, or at either end, is impossible to prove. The only remedy for such losses is the weighing of the loaded waggons at each end. Slight discrepancies might be accounted for by evaporation, but not half a ton loss, as we have had a knowledge of. All these grievances of farmers have much better chance of redress if represented to the railway people by a powerful farmers' club.

Another member, a county councillor, pointed out the need for care in purchasing foods and manures, and the necessity of analyses of all important consignments of the same. The council had been doing excellent work under the Merchandise

Marks Act in analysing manures and agricultural foods, but a recent amendment of the Act has minimised their powers, and whereas they were spending considerable sums on analyses in the farmers' interests, now the expenditure is but a few shillings. He advised the appointment of analysts by farmers' clubs to carry out analyses for the members at special rates, and that all members should be urged to make use of the privileges so obtained. The farmers' club would thus be taking over the powers which the county authority has been deprived of. The council had been able to act promptly through an executive committee, but now action is so much slower that the whole process has been killed. This farmers' club has found out the value of promptness, and immediate action can be taken by a sufficient quorum of members called together at a moment's notice at a corn, cattle, or potato market, or sale, or agricultural show.

No doubt, in course of time, far greater and wider uses may be found for the club. The district at present is well served as regards supply of farm requirements at reasonable prices, but some good might be done in combining to buy machinery at wholesale prices. That combination for sale of farm produce will follow we do not doubt, but it will be by a gradual process. The evolution of the plans whereby such a scheme can be carried out to the satisfaction of individual farmers must be a slow one.

Work on the Home Farm.

Another week of frost, snow, and wind, culminating in floods of rain, and we are much in the same position as we were last week, viz., at a standstill. Fortunately, to-day we have milder and drier weather, so hope the much-needed change has come at last.

We see potato planting proceeding in a neighbour's field, and though the land is but light, it is certainly a very wet blanket to put potatoes to bed in, and they must have a bad start.

We begin to see a better appearance on the young barley and oats, but wheat does not improve at all. We think that hoeing would do good where there are plants enough to allow it, but many fields are very thin of plants, and cannot be hoed yet. Rolling and harrowing will be beneficial when the soil is dry enough; surely it will be soon.

Last week we mentioned our cattle troubles, and we have not finished with them yet. We are turning our milk cows out for a few hours daily, but they lie up at night. The usual Spring flush has not come yet; perhaps the grass is poor, and then the temperature is so low. Heifer's suckling calves also go out, but the calves, being young, remain under cover, and will do so for the present. Lying on wet grass might soon bring about loss amongst these young stock.

Turnip troughs being now out of use, should be put away under cover; also turnip cutters, and all stakes and netting not required until autumn. It is a good plan to have all hemp nets mended and tarred before they are put away for the summer. This necessary work is sometimes neglected altogether, if it is left over until after harvest.

There has been good opportunity to cart potato-pie-straw clearings into the empty yards; also to clean up any stackyard litter. Hurdles used for lambing yards and pens have also been packed away. A coat of tar does much to preserve them, but one seldom sees it used. If not required for some time, the tar would dry all right, and be clean enough to handle. Black varnish might also be used, as it soon dries. It is good for gates, yard fences, or stable standings; why should it not pay to use for hurdles?

Trade and Miscellaneous Notes.

King's Green Curled Kale.

We have received from Messrs. John K. King and Sons, Royal Seed-growing Establishment, Coggeshall, Essex, a specimen of their specially selected stock of Green Curled Kale. The cresting or curling was exceedingly fine and close, and bespeaks this variety as one of superior merit.

Messrs. Ware's Spring List.

The spring catalogue of Dahlias, Begonias, Chrysanthemums (border varieties), Pentstemons, Cannas, and choice annuals (plants), issued by Messrs. Ware, Ltd., of Feltham, Middlesex, will be found of value by all who do much early summer planting-out. It is compact, up-to-date, nicely arranged, and attractive.

Offer of a Book.

We have much pleasure in repeating our offer of last year, made through your columns, of a free copy of the work on Carnations, "The Perpetual Flowering Carnation," to all horticultural and gardeners' societies who apply for same.—HUGH LOW AND CO., Royal Nurseries, Bush Hill Park, Enfield.

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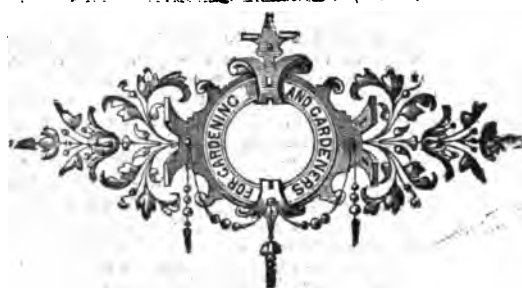
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500 Splendid specimens, trimmed pyramids, 5 to 6ft.; good balls; guaranteed. To be sold cheap. May is the best month to transplant Hollies.
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Journal of Horticulture.

THURSDAY, MAY 14, 1908.

Determination.



COURAGE and tenacity of purpose are usually considered to be synonymous with that valuable British quality, determination.

But the word is capable of being interpreted in widely different ways, for determination is often not only a matter of degree, but also of quality and type. For instance, there is the brilliant man who, for a time, shows

powerful determination, who will make herculean efforts to accomplish a given task, and then—as if the work of a lifetime has been concentrated in that one effort—will sink to listless mediocrity. The path of life is difficult for men of this type, who give such great early promise, and yet disappoint their friends.

Then there is that evenly flowing determination which enables its possessor to go quietly onward, never making any great spurt or startling headway at any time, yet with certainty securing a fair measure of success. Men with such desirable qualities may surely be looked upon as the backbone of a strong nation, though they may not reach the top of the ladder in their respective callings.

Much might be written about other types of men whose determination differs only in degree from the illustrations given. Let me, however, carry the comparison a stage farther, and treat of ideal determination. Look at the men who have a wide grasp of things generally, and, therefore, considerable mental power, whose determination is unflagging, and yet at critical junctures can be exerted with vastly increased power; who are never daunted by disaster, but, instead, fight the hardest when the odds are the greatest, who press forward! forward! as long as they can go at all. Such men, I trow, are the giants of the race, as exemplified in Nelson, Wellington, Livingstone, Stanley, and in that old hero of recent times who coiled the memorable phrase, "Caistor men never turn back!"

At this point the question naturally arises—

READERS are requested to send notices of Gardening Appointments or Notes of Horticultural Interest, Intimations of Meetings, Queries, and all Articles for Publication, officially to "THE EDITOR," at 12, Mitre Court Chambers, Fleet Street, London, E.C., and to no other person and to no other address.

No. 1455.—Vol. LVI

NEW HYBRID CALCEOLARIA FOR GREENHOUSE.

'CALCEOLARIA CLIBRANI'

(Calceolaria corymbosa × Speciosa).

A Distinct and Beautiful Plant for Greenhouse and Conservatory Decoration.

This new Calceolaria will prove a valuable acquisition to cool house decorative plants.

It is of shrubby habit, strong and vigorous in growth, and produces an abundance of beautiful lemon-yellow flowers.

The foliage, 5 to 6 inches in length, is ovate lanceolate in form, with prettily cut and indented margins.

The flowers are of large size, lemon-yellow in colour, produced in fine heads.

The plant roots readily from cuttings put in during the Autumn, when in growth they may be stopped once or twice, according to the height the plants are required to attain; they will flower in May and June. After flowering, if cut back, the plants may be grown on for a second year, when they will make large bushes and produce an immense amount of flowers. We strongly recommend this plant as an excellent subject for a cool house.

**STRONG PLANTS IN 5-INCH POTS, IN BUD AND BLOOM, 2/6 EACH,
24/- PER DOZEN. Immediate Delivery.**

New List of Indoor Plants containing particulars of many choice Novelties. Free on request.

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What has this to do with horticulture? I think few will dispute that those who are able to read between the lines will discern that they contain much that is applicable to those engaged in horticultural pursuits. Success in the pursuit of horticulture, either in its commercial or private aspects, is of necessity largely a matter of determination and force of character, for no matter how skilful a man may be, a full share of success will never be attained if tenacity of purpose be lacking. On the other hand, men who start with a great disadvantage in regard to natural ability, yet who possess plenty of tact and determination, will frequently—one may almost say generally—outstrip those who are merely skilful cultivators. This is a point of view too often ignored by those who, from time to time, put forward suggestions for the betterment of gardeners. Many other matters beside that of being a successful cultivator go to determine the measure of success a gardener will attain, and it is certain that men who have won, and have for years held enviable positions, would be the first to admit that, quite apart from their cultural ability, their success has in a great measure been due to determination and resource in combating difficulties.

Most of us, I think, sometimes take a retrospective glance at our career, and think of those with whom we were associated in our probationary days; think of them as they appeared to us then, and mark how their after progress has differed from the promise of early life. Have we not all seen how many who appeared to have the brightest prospects before them have failed to reach the prize which was well-nigh within their grasp? Some have undoubtedly failed through misfortunes beyond their control; others had too little real pluck to fight on boldly till the goal was reached, and therefore drifted into other callings, or remained contented with a post inferior to what their abilities could have commanded had they also possessed force of character and determination. Fortunately there is also another and a brighter side to dwell upon, and which must at times bring to most of us real pleasure. How gratifying it is to look back to the struggling youths who started their careers under great disadvantages; who, with but little education, with no great amount of natural ability; who seemed to have to work hard for whatever knowledge they acquired; and who were generally looked upon as quiet plodders who would never—to use a oft-repeated misquotation—set the Thames on fire, yet who have come out winners. It is gratifying to find that some of the most successful horticulturists of to-day have been evolved from those plodding youths of twenty-five and thirty years ago. The secret of their success has been grim determination and steady ambition. No matter what obstacles were encountered, they believed they might be overcome, and were determined to overcome them.

Again, men of great ability have sometimes, through force of circumstances, had to accept a small place when they might have reasonably contended they were capable of managing one of the finest gardens in the United Kingdom. They were, however, determined not to regard the small place as their final goal, and by work of commanding excellence have managed to use the small, splendidly-kept place as a lever to rise to the height of their ambition. Yes, there are more ways than one for reaching the desired goal, so long as one has grit and will-power, as well as ability. The successful plodder is already playing an important part in the work and progress of the nation, and he will become more and more in evidence in the future as competition and complications increase.

In order to make it quite clear that the above has not been penned in a spirit antagonistic to theoretical knowledge, let me emphatically state the conviction that determination is quite as necessary—if not more necessary—to overcome the disinclination to study carefully and systematically as to conquer the practical and physical difficulties which have to be overcome. In fact, I believe that many successful men of to-day will agree that some of their hardest tasks in the past have been performed during the hours spent in study at night, rather than during those spent in doing hard physical labour during the day. This is another proof of the many points of view from which determination may be considered. Does it not also show how valuable is the possession of "adaptable" determination?—ONWARD.

We hope that many of our readers will pause and consider the lines that follow. A year or two ago we ourselves introduced the subject of the proper and effective arrangement of

Effective Arrangement.

plants in glass houses to the earnest consideration of readers, and a discussion, which we would like to think had good results, followed upon our remarks. In the leaderette to which we refer, it was pointed out, as it is so ably again pointed out by our contributor hereunder, that very many gardeners are excellent plantmen; they can cultivate to perfection, but after that, they fail. They seem to have a meagre conception of how to arrange their plants to the best possible advantage. Even "old sticks" can be made effective, to a degree, by being skilfully disposed. But there are many other

gardeners, honest men, and good in certain departments, who fail even to cultivate their stove or greenhouse plants decently well, because they first of all neglect to give them growing space. The subject of effective arrangement, like most others, is more far-reaching than one is at first disposed to think. But let us hear our friend:—

That an artistic eye is not necessarily a corollary to an efficient hand in matters horticultural may be amply proved by a cursory glance around many a conservatory, drawing-room, or exhibition tent. The beauty of admirably grown plants is often marred by tasteless arrangement. Despite the reiterated advice of experts *apropos* the excellent effect of grouping, there are still some otherwise good plantmen who apparently consider a heterogeneous medley the acme of perfection in a conservatory display. I will not go so far as to say that such an arrangement is actually offensive to the eye. The innate charm of well-bloomed plants will always, in some measure, rise supreme even above the disadvantages of ill-considered disposition. Yet the obviousness of unaccepted opportunities, of possibilities condemned to remain latent and hidden away, jars painfully upon the artistic temperament, as the rendering of a musical classic by a reedy tenor might irritate the ear of a lover of song. Indeed, I have a fanciful idea that a well-arranged conservatory is comparable to a good interpretation of a musical masterpiece. The preconceived theme, the dominant notes, must be kept up from start to finish without a suspicion of flatness or discord. Here we have the fine effect of banked Gloxinias or Calceolarias; each colour-note perfect in itself, yet blending easily and tunelessly into an harmonious chord. There swells the bold crescendo of the Lily groups, falling gradually into the soft cadence of Malmaison, Fuchsia, or Celosia masses, with the graceful tremolo of feathery palm and fluttering grass to relieve and accentuate the stronger touches.

In the formation of a bank of large flat-leaved plants—of which the Gloxinia is a typical example—it is a very easy matter to produce a heavy effect by overcrowding. Every specimen should have enough space to accommodate its expanse of foliage, and to show off its particular characteristics of growth. Even with strict attention to these points and the back rows properly elevated, there always remains a certain sense of flatness, which may be surprisingly dispelled by the intermixing of a few small *Cupressus natalensis* or *Carex*, the elegant foliage of which at once relieves the dead level, and tones down the rich tints of the blooms in a most pleasing manner. The error of overcrowding is much too prevalent also in the grouping of tall-growing plants, as anyone who has any experience of Chrysanthemum shows will be able to testify. How often do we see the effect of an excellently grown group entirely spoiled by the jamming of the blooms one into the other. Last year I can recall at least one instance of the best lot of plants being relegated to second place by the judges for this reason alone. We can understand the natural desire to work as much bloom as possible into the restricted area, and it is quite right and necessary to do so; nevertheless, the completed group should not convey the slightest impression of laboured designs to accomplish this object. Every flower should stand out freely and naturally, and occupy just that amount of space which artistic taste and experienced judgment can alone decide.

And oh! the sorry spectacle that an exhibit of Sweet Peas sometimes presents. Huge bunches tightly compressed and cruelly thrust into wide-mouthed vases would make the most hardened show-goer shudder, and yet he is often called upon to withstand the shock. From a dozen to twenty long-stalked racemes lightly arranged with a little of their own foliage or *Gypsophila paniculata*, in narrow-necked receptacles, will best display the unique charm of these popular flowers. The whole art of floral arrangement, whether of plants or cut flowers, may be summed up in the one word, *character*. Whatever the subjects or for whatever purpose, preserve character in the setting up, bring out and reveal to the full all essential and distinguishing features, and all that matters in effective arrangement will have been achieved.—J. E. S.

Floral Decorations.

Clear yellow Tulips, such as *Chrysolora*, *Yellow Prince*, and *Canary Bird*, look beautiful arranged in mauve glass or pale purple pottery; the colour harmony is enhanced by some soft ribbon ties of apple green, against which the Tulip foliage will appear silver. The longer stemmed the Tulip, the easier it is to place elegantly, but if the tallest are very weak in the stem, a few can be wired to enable them to give centre height. Two thicknesses of wire are needed, the very finest to bind the stem to the other, the slightly thicker to thrust right up the juicy stem and penetrate the eye of the blossom. A cross formed of similar vases of Tulips looks well made in the centre of a table, with four low bowls arranged to match; place one in each space between the cross branches. It is far better (observes "The Gardener") to arrange Tulips with their own foliage than with greenery from hothouse plants.

Orchids

Cattleya Schröderæ, The Baron.

No finer variety of this chaste and choice Cattleya has been seen for many years than the one under notice. Our figure inadequately presents the delicate grace of the flower; one has to see it in its natural state to be able to appreciate all its merits. The colour, too, is necessarily absent in our reproduction. The orange in the throat is rich and deep, and the mauve or heliotrope zone in front is very pronounced, the fringed lip being pure white. The petals and sepals are stout, and of a pleasing rose-mauve tint. The plant was shown by Major Holford at the Royal Horticultural Society's show on April 14, and was unanimously accorded a first-class certificate.

Seasonable Reminders.

A change in the weather would be welcome, and would have a beneficial effect on vegetation and orchids especially, which are in need of a little sunshine to encourage root action among those newly potted. It would also promote sturdy growth throughout the collection. Where raising orchids from seed is practised, every facility must be provided to prevent any check, from the germination of the seed till they reach the flowering stage. The process of pricking off and potting-on should never be neglected, and the atmosphere and the soil ought not to become dry.

In the cool division fire-heat can almost be dispensed with, excepting when there is a sudden fall in the temperature, which may occur during this somewhat erratic month. A light spray overhead both morning and afternoon on bright days will greatly assist the inmates, and at this season no plant must suffer from drought. Plenty of ventilation is necessary, but discretion should be exercised when utilising the top ventilators, particularly if the weather is hot and dry, because a direct current of air will soon cause the moisture to disappear. At night, however, they may be freely employed with advantage.

Odontoglossum grande is usually in a condition for repotting about this time, and the same mixture as advised for *O. crispum* suits this species admirably. A few of the latter may need attention at intervals, as the flowering period is extended over the whole year.

The graceful *O.'s citrosimum*, as they pass out of flower, can be repotted if required, using a mixture with rather more peat

or polypodium fibre than is usual, and selecting either teak-wood baskets or pans, which are suspended about 2ft from the roof-glass in the Cattleya house.

Pleiones are now making rapid growth, and should occupy a slightly shaded position near the glass, such as a shelf. Spray the under surface of the leaves frequently, and water with weak liquid cow manure twice a week till the foliage and bulbs show signs of approaching maturity. *Sobralias* that are pot-bound will also enjoy a little stimulant, such as recommended for the Pleiones.

Disas will soon be producing a nice display, as their spikes are far advanced; but only the strongest specimens ought to flower—a remark which, of course, applies to all orchids.

The warm houses need damping down twice or thrice each day, according to the elements outside, and all air should be taken off at 3 p.m. to retain as much sun heat as possible in the houses; but between 7 p.m. and 8 p.m. the bottom ventilators may be opened an inch or two, and remain so through the night.

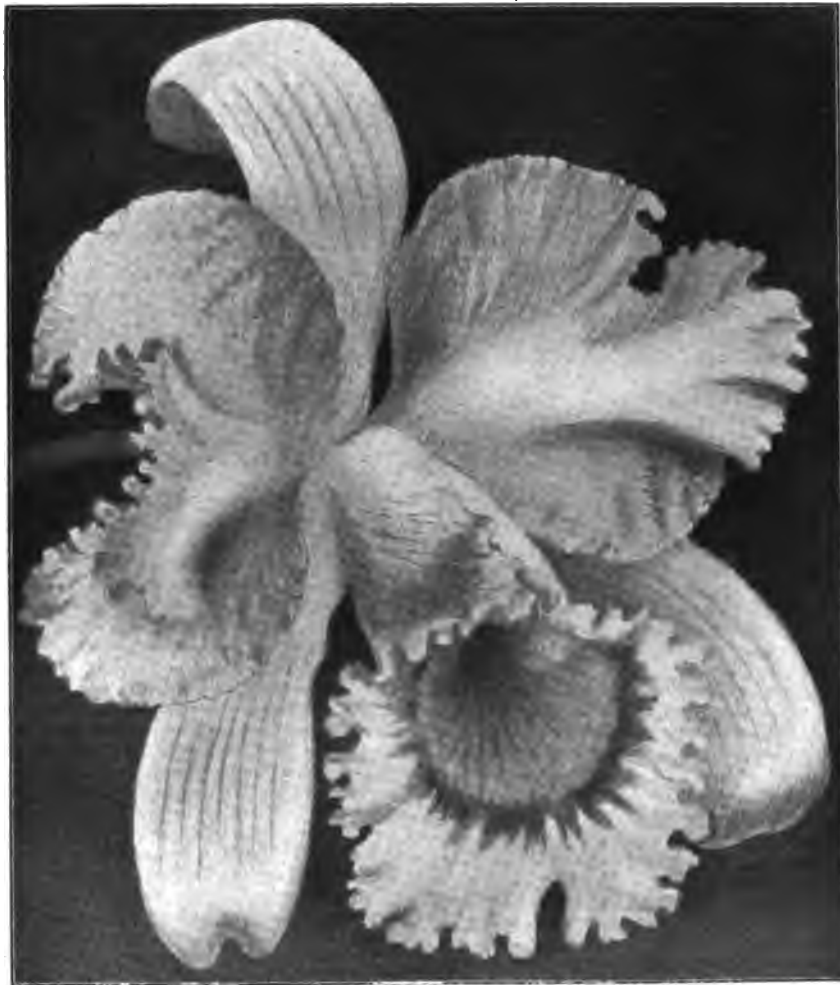
All plants recently disturbed at the base require a little extra shading until they are re-established, and this can be

done by arranging a few sheets of paper over them prior to lowering the blinds. The sprayer or "Abol" syringe, used occasionally, will help to maintain the pseudo-bulbs in a plump condition till the roots have taken possession of the compost.—
T. ANSTISS.

Cattleya

Percivaliana alba.

Albinos of all Cattleyas are interesting and beautiful orchids, and the fine white form of *C. Percivaliana* is no exception to the rule. A plant illustrated in the "American Florist" recently was found by Manuel A. Ordonez, of the firm of Ordonez Bros., Madison, N.J., about eighteen miles from Carache in Venezuela. The flower is large for *Percivaliana*, viz., 6in across; the sepals and petals are pearly white, while the lip has the usual dark markings, so that, strictly speaking, it is not a true albino, though a very lovely form. Mr. Ordonez says he found it growing where the temperature in the evening was often down to 40deg, and even at noon only



Cattleya Schröderæ, The Baron.

around 70deg. This proves that Cattleyas do not need the heat often given them; and, as we have frequently pointed out in this column, they do far better in a house where there is abundance of air moving night and day. Unless the writer is mistaken, it was the late Dr. Percival, of Bridge-of-Allan, Scotland, that this beautiful Cattleya was named after, and many years ago this then-famous orchidist was preaching the doctrine of cool airy conditions for orchids, and practising what he preached in his own collection. At that time every orchid, whether from the low sweltering valleys or from high mountainous regions, were all consigned on arrival to the hot moist houses then thought necessary for orchids, and hundreds of choice *Odontoglossums* and other lovely cool species were sent

to the United States and to Europe only to be roasted or par-boiled to death.

But these conditions have long since been improved upon, and in the large well ventilated houses, such as are used for Roses and other commercial flowers, the South American Cattleyas and Lælias find a far more congenial home. *C. Percivaliana* is unrivalled in the beautiful lip markings. It flowers in winter before the bulk of *C. Trianae* is in, and is an excellent commercial species. If grown in pots or baskets the roots should not be overloaded with compost, and the pots or baskets should not be much larger than to take the plants comfortably, and leave about an inch margin for peat and moss.

Cross-fertilising Apples.

The Apple is a very well-defined example of evolution—from the Crab (*Pyrus Malus*) Nature evolved the Crab-apple, then man, by cultivation and selection, combined with cross-fertilisation affected by bees, or even wind, originated improvements, and of these the respective generations of mankind would not be slow in availing themselves. Thus, in the time of the Lake-dwellers we find Apples, attested by their carbonised remains, superior to the Crab, and though these may not be more ancient than those grown by the Greeks in the time of Homer, or of Epicurus, the "garden philosopher," who purchased a garden in a favourable situation at Athens, B.C. 306, and cultivated fruit, including Apples, it is certain that Apples were cultivated in the western as well as the eastern parts of Europe at a remote period.

The Romans, according to Pliny, had twenty-two varieties of Apples, some introduced from Armenia the *Api* or *Lady Apple* having been brought from Peloponnesus to Rome by Appius Claudius, a Roman patrician, and one of the ten decemvirs appointed to compose a complete legal code for Rome, B.C. 451. Pliny, A.D. 77, alludes to the *Appiana* and *Claudiana* Apples, but of the introduction of these or any other varieties of Roman Apples into Britain we have no data. It is, however, highly probable that the Romans did bring their Apples as well as other fruits into Britain, and established them in the gardens of their town residence citadels, such as *Verulamium*, and these varieties mixed with the native Apples, and were practically lost or conjoined by natural cross-fertilisation, cultivation, and selection. Nevertheless, it is a notable fact that there is no semblance of the *Api* or *Lady Apple* in any of the Hertfordshire Apples of recent date, though in the older ones, such as *Golden Pippin*, of which there were two forms, the "Great *Golding*" (the *Golden Pippin* of Parkinson), and the "Small *Golding*, or *Bayford*," the former a cider, and the latter a dessert, Apple. Evelyn mentions Lord Clarendon as having at Swallowfield, Berks, an orchard of 1,000 *Golden* and other cider Pippins, the term *Pippin* meaning origination from seed. The name *Bayfordbury Pippin* implies for the "Small *Golding* or *Bayford*," a Hertfordshire origin, so that our present Apples may have some Roman "blood" in their veins. Be that as it may, there is no question of *Golden Reinette* being a Hertfordshire Apple, possibly an evolution from the *Golden Pippin*, and both running back to Roman times. Of *Golden Reinette* there also appears to have been two kinds—large and small—for Ellis in his "Modern Husbandman," in 1744, says "the *Golden Rennet*, when of the largest sort, may be said to be the former's greatest favourite Apple, because when others miss bearing, this generally stands his friend, and bears him large quantities on one tree." The name English *Pippin* given to this variety implies indebtedness to some other sort of foreign origination, hence the definition English.

Everybody, of course, knows that the Britons cultivated Apples long anterior to the Roman invasion, as evidenced by the etymology of the name *Avall* or *Aball*, as the Apple was called in the Welsh and Irish dialects, and by the town which occupied the site of *Glastonbury*, in Somersetshire, being known when the Romans first visited it as *Avallonia* (Apple orchard). This implies cultivation, and it is certain that the evolved forms would be seized as they presented themselves, and also any introduced availed of as manifest improvements in whatever way they might originate. In Saxon times the archbishop's invocation in the ancient rite of coronation—"May the blessing of the Almighty bless thee with blessings of Heaven above, and the mountains, and the valleys, with the blessings of the deep below, with the blessings of Grapes and Apples"—seems to indicate the merging of the Roman, if any, with the British varieties, these being improved in flavour and perfume by the Roman stock—the *Appiana* and the *Claudiana* of Pliny. This would be effected by natural cross-fertilisation, improved varieties springing up from seed in hedgerow, or wood, or skirting the boundary of a dilapidated worn-out orchards, and in that way of chance selection were our Apple orchards most enriched during Roman, Saxon, and Norman times; for, though the Normans brought their Apples with them when they

came to settle on the fat lands distributed amongst them by William the Conqueror, and warriors, monks, exiles, and devotees vied with each other in the introduction of improved varieties of Apples and other fruits, horticultural skill being much exercised at the monastic establishments and baronial demesnes, not any of these had knowledge of the improvements and variations effected in the seedlings being due to cross-fertilisation. Nevertheless, the old English *Pearmain*, a great advance on the Crab-apple, and certainly of British origin, if there be any meaning in names, was grown in Norfolk as early as 1200, and the *Costard* is mentioned in the fruiterers' bills of Edward I. in 1292.

Natural cross-fertilisation appears to have been, combined with cultivation and selection, the prime agent in the improvement of the British Apple up to the close of the eighteenth century, and in the whole of the period from the Roman invasion, B.C. 55, down to the Georgian era it seems difficult to account for the results attained in the British Crab or Crab-apple without infusion of blood of higher quality and aromatic flavour by the pollinary influence of introduced varieties from the Continent. Chance seems to have been relied on up to that time, as, for instance, *Greenup's Pippin* (*Counsellor*, *Cumberland Favourite*, *Red Hawthornden*, *Yorkshire Beauty*) was discovered in the garden of a shoemaker at Keswick, named *Greenup*, and was first cultivated by *Clarke* and *Atkinson*, nurserymen at that place in the end of the eighteenth century, and was much grown in the nineteenth century throughout the Border Counties. *Keswick Codlin* was first discovered growing among a quantity of rubbish behind a wall at *Gleaston Castle*, *Ulverstone*, and was first brought into notice by one *John Sinclair*, a nurseryman at *Keswick*, who, having propagated it, sent it out under the name of *Keswick Codlin*. *Bess Pool*, a *Nottinghamshire Apple*, was found in a wood as a seedling tree full of ripe fruit by a girl named *Bess Pool*, and *Blenheim Pippin* was discovered at *Woodstock*, in *Oxfordshire*, and said to have been raised from a pip planted by a person named *Kempster*. *Red Streak*, or *Scudamore Crab*, a *Herefordshire Apple*, originated about the beginning of the seventeenth century, and was planted extensively by the first Lord *Scudamore*; with *Ashmead's Kernel*, raised at *Gloucester*, about the beginning of the eighteenth century by *Dr. Ashmead*, prove conclusively that our present varieties are due to the enterprise of our ancestors. But up to the close of the eighteenth century there is no evidence that cross-fertilisation, other than natural, particularly by bees, was had recourse to for originating new varieties.

T. A. Knight, Esq., at the close of the eighteenth and beginning of the nineteenth century, was the raiser of many new varieties by cross-fertilisation. *Red Ingestre* and *Yellow Ingestre* both originated from two pips taken from the same cell of the core, the result of crossing *Orange Pippin* with *Golden Pippin*, the progeny bearing about 1800. *Wormsley Pippin*, also raised by *T. A. Knight, Esq.*, was brought into notice in 1811, and probably was a chance seedling, as no account is given in *Dr. Hogg's Fruit Manual* of its origination other than that stated, and is named from *Wormsley Grange*, in *Herefordshire*, where *Mr. Knight* was born, August 12, 1759. The tree is hardy, healthy, a free and abundant bearer, forms a large pyramid and good standard, fruit large, clear yellow, with a deeper tinge on the side next the sun, and valuable either for dessert or culinary purposes in its season—September and October. "It has been found to succeed in every latitude of these kingdoms," says *Dr. Hogg*. "Even in *Ross-shire*, the late *Sir G. S. McKenzie* found it succeed well as an espalier. It ought to be cultivated in every garden, however small." This variety, which *Mr. Knight* considered closely resembled the *Newtown Pippin* when well ripened, probably having been crossed with that sort, hardly has place at the present time in British gardens and orchards, and it is included in few catalogues, *Messrs. Jas. Veitch and Sons, Chelsea, S.W.*, still retaining it. In *Waltham Abbey Seedling* we have *Doctor Harvey*, one of the oldest English Apples; and *Golden Noble*, brought into notice in 1820, was procured from a tree supposed to be the original in an old orchard at *Downham, Norfolk*.

Directly opposed to self-impregnation in the continuance of type, and as showing the beneficial effect of cross-fertilisation, may be named *Welford Park Nonesuch*, raised by *Mr. Charles Ross*, gardener at *Welford Park*, near *Newbury*, from *Golden Harvey*, fertilised, it is supposed, by *Lamb Abbey Pearmain*, as the fruit from which the seed was taken grew on a tree half *Golden Harvey* and half *Lamb Abbey Pearmain*. The seed was sown in 1864, and in 1865 grafts were put on *Blenheim Pippin*, which fruited for the first time in 1871. Both parents in this instance are small-fruit varieties, *Lamb Abbey Pearmain*, the assumed pollinary parent, having been raised from the pip of an imported fruit of *Newtown Pippin* in the year 1804 by the wife of *Neil Malcolm, Esq.*, of *Lamb Abbey*, near *Dartford*, in *Kent*. *Dr. Harvey*, the certain seed parent, of unknown origin, is one of the best dessert Apples, and also one of the best for cider, as its juice is of the specific gravity 1095, therefore called the *Brandy Apple*. The rever-

sion in the case of the Welford Park Nonesuch Apple is apparently to Newtown Pippin.

But our choicest Apples have been originated by chance or selection of seed from varieties possessing distinctive and superlative properties, and without recourse to cross-impregnation, or, if practised, we have not been told. Roundway Magnum Bonum, raised at Roundway Park, near Devizes, exhibited at the Royal Horticultural Society in 1864, when it received a first-class certificate, a very solid and heavy fruit for its size, and in use till April without shrivelling, may be taken as example of the best dessert Apple without a parental history, surpassing in richness of flavour Cox's Orange Pippin and Ribston Pippin. Cox's Orange Pippin was raised from a pip of Ribston Pippin, and there is a departure from the hard flesh of the latter variety to tenderness of grain without loss of quality and perfume, but the tree, like the seed parent, is liable to canker. James Grieve, a variety from Scotland, styled an early Cox's Orange Pippin, possesses the good qualities of that variety, bearing freely, and of harder constitution, may be planted where Cox's Orange Pippin does not succeed. In the same category of unknown parentage may be placed Allington Pippin, though this is an assumed cross with King of the Pippins and Cox's Orange Pippin, both parents requiring a warm soil and situation, as also does Golden Reinette, of which there is trace of its flavour in Allington Pippin, yet the tree is healthy and vigorous in growth and a good bearer. Of less questionable parentage is Langley Pippin, originated from a cross between Cox's Orange Pippin, the pollen parent, and Mr. Gladstone, the seed parent, the influence of the former being strikingly apparent in the fruit while the latter is retained on the tree.

Thus, as foreshown, the natural proclivities of the Apple are evolution on lines befitting soil and climate, and departures therefrom are due to transference from place of origination. Throughout the length and breadth of the British Islands we find varieties of Apples transcending in hardness of tree and certainty of crop, and we infer that this is due to acclimatisation, and therefore fitness for the particular district in which respectively found. On these the cross-polliniser may work with the choicer varieties in certainty of evolving progeny of higher grade in appearance, quality, and use, for in this way the Crab has been evolved, conjointly with cultivation and selection into the present-time Apple. If dwarf trees are desired, take the Hunthouse, discovered at Whitby, in Yorkshire, as seed parent, and on this operate with pollen of Claygate Pearmain, found growing in a hedge at Claygate, a hamlet in the parish of Thames Ditton, in Surrey, or with Hubbard's Pearmain, a real Norfolk Apple, tree a small grower, but healthy, hardy, and an abundant bearer, and in this way evolve varieties of the highest excellence for dessert or culinary purposes, or both combined, with constitutions and habits fitted for exposed situations, even moorlands that sooner or later are sure to be reclaimed from worse than waste. If a medium-sized tree be desired and as "hard as nails," take the variety Norfolk Bearer as seed bearer, and use White Transparent pollen for evolving an early use variety, Lane's Prince Albert for a winter use culinary sort, and Scarlet Nonpareil for a dessert Apple of first quality in use from January to March, and with plenty of colour to attract attention and secure appreciation.

In such way the several local varieties notable for hardness, freedom from canker and attacks of insects, free-bearing and perfecting of crop, such as the Minchull Crab, peculiarly adapted to their respective districts, from Land's End to John o' Groats in Britain, and from Mizen Head in Cork to Fair Head in Antrim, Ireland, could be utilised as seed parents for originating new sorts by cross-fertilisation with the choicest native and introduced kinds from other countries, that would give supremacy to native Apples throughout the whole of the British Islands. Who, it may be asked, is to do this work? The query is father to another, viz., What are the stations of the several county councils instituted to induct? Teach the "young idea how to shoot!" At what? Where are the results of these institutions seen? In the British markets, by produce superior to imported, in land more highly and profitably cultivated in garden and field? I trow not. Surely the experimental grounds have been long enough established and plenty of public money spent on them to by this time yield some fruit of a tangible nature. Where, oh! where, is the prosperity that obtained in the rural districts at the middle of the nineteenth century? There are but few results for the money expended on educating the rustics by county councils. What are cottagers' and farmers' orchards? Decrepit in trees, scabbed in fruit, saleless in the markets. There are only a few exceptions.

What a field for evolution in Apples is thus opened for county councils everywhere; also the experimenting on suitability of varieties to the several districts. Though Knight was mistaken in respect of the longevity of the Golden Pippin, his fillip at the beginning of the nineteenth century accounted for much of the success of the cottagers' and farmers' orchards at its middle, and the neglect of his inductions afterwards accounts for the decadence now so apparent.—G. ABBEY.

NOTES & NOTICES

An English Instructor for Scotland.

Mr. A. Hosking, for the past three years horticultural instructor to the Lancashire County Council, and formerly foreman in the Botanic Gardens, Cambridge, has been appointed horticultural instructor to the West of Scotland Agricultural College, Glasgow.

Black Scab in Potatoes.

At the invitation of the Board of Agriculture, the National Fruit Growers' Federation convened a conference of Potato growers, scientists, and others interested in the subject of black scab in Potatoes, which was held on May 7 at the Board's offices. The suggestions made to the Board by the federation on April 3 last were again put forward without alteration. The Board agreed to make black scab a notifiable disease, to ascertain at once the exact areas at present affected; and also agreed to withdraw their leaflet on the black scab, which seems to have been considered incorrect.

A Large Herbarium at Missouri.

We understand that the trustees of the Shaw estate have commenced a scheme that is to cost half a million dollars. It includes the construction of seven new buildings on the Missouri Botanical Garden property, and the establishment of the finest herbarium in the world. Much good work has been done at the Missouri Botanic Gardens, and the new scheme, when completed, will tend to enhance the reputation and usefulness of the establishment.

Evesham v. Paris Gardening.

Three years ago (writes Mr. Beach Thomas in the "Mail") a company of Evesham gardeners visited Paris and came away astounded at the productivity of the soil. Arrangements were at once made at Evesham for setting up a model garden, and a Frenchman was invited over to teach the secret. He was allotted three-quarters of an acre, and in a few months that three-quarters of an acre was producing as much as any other three acres. Of course, it takes some years to bring the soil to such a pitch of perfection as the Frenchman aims at, but it was found that after the first year an acre of ground at Evesham could yield at the rate of over £600 worth of produce per year.

United Horticultural Benefit and Provident Society.

The usual monthly meeting of this society was held at the Horticultural Hall, Vincent Square, Westminster, on Monday evening last. Mr. Charles H. Curtis presided. Five new members were elected and one nominated. The death certificate of a member was produced, and the amount standing to his credit in the books was ordered to be paid to his nominee. The amount paid for sickness during the month was £25 12s. The sick pay to May, 1907, was £199 11., and to the same time this year it is £154 8s., being less by £45 3s. than last year. At the present time there are five chronic sick and five other members on the Sick Fund. The annual report and balance sheet has been posted to all honorary and benefit members. Any member not having received one will please notify the secretary.

Large Asparagus Imports.

The French and Spanish shippers despatched record consignments of Asparagus to Covent Garden Market on Wednesday and Friday last week. Upon their arrival in the market the auctioneers started business with the intention of clearing out their stocks regardless of price. As the result Spanish Asparagus of new season's growth was sold at 6d. a bundle, the lowest price known for years. Toulouse Asparagus sold at 1s. 4d. a bundle. Giant Asparagus fell in value by 50 per cent., and quantities were disposed of at 3s. a bundle, which a week ago would have realised 6s., and possibly more. These large French and Spanish shipments were the result of the sudden spell of hot weather in Europe generally last week. The foreign Asparagus crop, says "The Times," is unusually large, and abundant supplies may be expected in London during the next week or two.

Kew Guild Dinner.

We are requested to remind our readers who are old Kewites, that the annual dinner will take place at the Holborn Restaurant on the 26th inst. at 7.30 p.m., and that the secretary, W. N. Winn, would be glad to hear before the 18th from all who intend to be present.

Co-operators Purchase Land.

Negotiations have been completed for the sale by Mr. James Wilson, colliery owner, Musselburgh, to Tranent Co-operative Society, Limited, of the surface land of Bankpark, Tranent, at present in use as a market garden. Mr. Wilson, who only quite recently purchased the small estate, retains Bankpark House, the minerals, and sufficient ground for the pit head of his new colliery. The ground disposed of extends to thirty acres, and the purchase price approaches £2,500. For the present the co-operators will continue the market garden operations.

A New Botanical Garden.

The new botanical garden of the Johns Hopkins University at Homewood, Baltimore, Md., reports an exchange, is in charge of Prof. D. S. Johnson. It is contemplated to commence at present with a biological garden and one greenhouse for biological work. Later on there will probably be added a systematic garden of about two acres. In addition to these, plants, trees, and shrubs of botanical and ornamental value will be planted on suitable sites in Homewood Park, conforming to the general landscape plans. Wm. H. Witte, who has had extensive experience in similar institutions in Germany and Italy, with a general horticultural experience of thirty-two years, is the chief gardener in charge.

April Weather at Belvoir Castle.

The prevailing direction of the wind was N.E.; total nine days. The total rainfall was 2.23in; this fell on twenty-three days, and is 0.50in above the average for the month; the greatest daily fall was 0.46in on the 28th. Barometer (corrected and reduced): highest reading, 30.457in on the 7th at 9 a.m.; lowest reading, 29.419in on the 24th at 9 a.m.; mean of 9 a.m. and 9 p.m. readings, 29.963in. Thermometers: highest in the shade, 57deg on the 2nd and 30th; lowest on the screen, 28deg on the 8th; mean of daily maxima, 47.86deg; mean of daily minima, 34.66deg; mean temperature of the month, 41.26deg, which is 4.50deg below the average; lowest on the grass, 17deg on the 8th; highest in sun, 116deg on the 30th; mean temperature of the earth at 3ft, 42.66deg, which is 1.82deg below the average. Total sunshine, 123 hours 20 minutes, which is 37 hours 17 minutes below the average; there were six sunless days. Low temperature and absence of sunshine have caused all vegetation to be very late in starting. Gooseberries are much damaged by the frost and snow; prospects are good for all other kinds of fruits.—W. H. DIVERS.

Concerning the B.G.A.

The annual meeting of that lusty society, the British Gardeners' Association, will be held on the evening of the second day of the Temple Show, in London. It gives every promise of being quite as lively and interesting as its predecessors. We trust, however, it may conclude as satisfactorily, and no doubt it will. The members this year are having the privilege of a ballot for the election of eight members of the executive council, and there are twelve candidates duly proposed and seconded. Another departure is the publication, in separate form, of all the names and addresses of the members of the association. The May issue of the society's "Journal" contains the attendances of members of the executive council during the past year. We observe with interest that one member, Mr. F. T. Woodfield, never put in an appearance, while Mr. Caselton, Mr. Travener, and Mr. Watson, of Kew, have only been present once. This issue also contains the annual report and balance sheet. The council, we observe with satisfaction, is still of the opinion that the time has not yet come when the association can afford to pay from £350 to £400 for a permanent paid secretary and for offices. It is assuredly wise to live within one's means. Meanwhile, we commend, as another of the interesting articles and notes in the May issue, Mr. W. Watson's letter, page 90, on this subject of a paid permanent secretary. The "Journal of the British Gardeners' Association" can be had from Talbot Villa, Isleworth, W., post free for 1½d.

Plea for Higher Wages.

A pamphlet in support of the plea for higher wages for the under professional gardeners at Kew has been issued by Mr. W. Purdom, secretary district branch of the Government Workers' Federation. The argument is legitimate in all its points, and we think the gardeners will receive the advance they advocate.

Strawberry Harvest Prospects.

According to "The Times," the Strawberry fields of the United Kingdom are full of promise in spite of the recent cold spell of weather. In Kent, Cheshire, Cambridge, Worcestershire, Somerset, Cornwall, &c., the plants are in robust condition, and several of the leading commercial cultivators agree in saying that the coming crop will be a full one, probably as large as that of 1907. The Irish and Scotch berry farmers are equally fortunate. About Dublin a full yield is assured, as also at Perth, Aberdeen, and in the Clyde Valley. In most of these centres the Royal Sovereign and Sir Joseph Paxton appear to be more advanced than other kinds. The weather since the late autumn has been most propitious for Strawberry cultivation, and the plants were enabled to make free development before the close of the year. On the Continent, also, the promise of a good harvest is evident.

Nurserymen at Law.

We have several times referred to the action that has been before the Irish Courts, of the case in which Messrs. Alex. Dickson and Sons, Limited, of Dublin, Belfast, and other places, Rose growers and seedsmen, seek to restrain Mr. Alexander Dickson, seedsman and nurseryman, from carrying on business in Parliament Street, Dublin, as the "Ashbourne Agricultural Company," and at Woodlawn Nursery, Dundrum, as "Alexander Dickson and Sons," without taking reasonable precautions to clearly distinguish the business carried on by him from that carried on by the plaintiff company. The defendant relied upon his legal rights, and said his method of business was not calculated to injure the plaintiffs' business. The Master of the Rolls, in giving judgment, said the law was perfectly clear in a case of that kind, and in his opinion the defendant had used for the purpose of advertising, a name to which he had no right. By advertising his goods for sale under the name of Alexander Dickson and Sons he was doing so under a false name, or at all events a name which was assumed, for the purpose of attracting business which belonged to another man. The impression he had formed of the conduct of the defendant was that the step he took was taken in a moment of almost ungovernable anger, and without the consideration that ought to have been given to it. The plaintiffs, not content with their business in Belfast and Newtownards, came down to Dublin to compete with the traders there. Competition, keen enough already, became too keen for the Ashbourne Agricultural Company in the beginning of 1907. The giving to the plaintiffs of the contract for heavy seeds by the Department of Agriculture was the last straw, and there was little doubt that it was the loss of that contract, and the belief by the defendant that he had been unfairly supplanted by the invader from Belfast, that led to the advertisements which had given rise to the present action. On the day following the giving away of the contract the defendant advertised himself for the first time as Alexander Dickson and Sons, described his nursery as "the home of the Rose," and offered for sale "Dickson's choicest collections Roses, named varieties." There was no doubt that numbers of the public had been misled into the belief that the advertisement had been issued by the plaintiff company. The order of the Court would not prevent the defendant entering into partnership with his two sons, and calling that partnership by the style of Alexander Dickson and Sons, but it would be one that would prevent him using that name without taking reasonable precautions to distinguish between the business carried on in Roses and seeds grown and propagated by the plaintiffs from the business of the defendant in the same articles. He would go no further in the injunction. There was no option but to grant the injunction, but His Lordship felt, when all was said and done, that the defendant was more to be pitied for his impulsiveness than blamed. The plaintiffs were allowed the general costs of the action, the defendant to have his costs in so far as he had succeeded on the first of the two causes of action.—("The Irish Times.")

Stove and Greenhouse Plants.

Eriostemon affinis.

This is another of the hard-wooded subjects to which a brief allusion was made on page 400, issue of April 30. A plant like the one here shown, which, we believe, is in a 6in pot, is a very useful addition to the flowering house at this season of the year. Nice rounded heads can be secured by judicious pinching or pruning, without in any way sacrificing the floral display. Firm potting is necessary, and open-air treatment in summer, the pots preferably being plunged in some semi-moist cool material, avoiding dross or ashes, which are very hot and drying. The *Eriostemons* are certain bloomers, their white flowers lasting for many weeks.

Humea elegans.

A few years ago there was quite a dearth of this useful, sweet-scented, ornamental greenhouse biennial, and it seemed as though there was a chance of its dropping out of cultivation altogether. All the time, however, there were establishments where this *Humea* was grown in varying quantities, and at one of these places I was then engaged. I had evidence of the scarcity of *Humea elegans* from the ready sale of seeds or surplus plants, for which the demand far exceeded the supply. Since then, however, stocks seem to have been worked up again, and there need be no difficulty in the way of growing a quantity of this useful plant.

Humea elegans has characteristics all its own. Its peculiar aroma, which emanates from the foliage, is different to that of any other plant, and though it may not suit all tastes, to the majority of people it is anything but offensive. The uses of the plant are many and varied. Its light, feathery plumes are highly ornamental for the adornment of conservatories and greenhouses, nor are they out of place for room decoration. The plumes are useful when the plant is gone, and if cut when in a dry state they are admirable for placing in vases in the winter. The usefulness of *Humea elegans* in the flower garden must not be overlooked. Since the stiff, set rules of bedding have gone somewhat out of date, there has been a growing demand for plants of a light, graceful character for the beautifying of flower gardens during the summer. For this purpose *Humeas* are unsurpassed, the habit of the plant and the elegance of the plumes being alike suitable for massing, or as single specimens. Nowhere is the *Humea* seen to better advantage than when sunk in the pot in favourable positions on lawns and grass plots. A stake is necessary for keeping them from blowing about, and if the stems are well furnished with foliage, the appearance of the plants is most pleasing.

The cultivation of the plant is a simple matter, though if not done well, the results are disappointing, as a sickly-looking *Humea* with bare, leafless stems is anything but an ornamental specimen. Again, some growers experience difficulty in keeping plants through the winter, as they have a peculiar habit of suddenly drooping, and when once this takes place they are beyond hope. The cause may often be attributed to a too moist condition of the soil at the roots, though I am of the opinion that excess in the opposite direction will have the same effect. April and May are good times for sowing the seeds, which are not very quick in germination. A shallow pan is a good receptacle for the seeds, and as soon as the young plants are large enough to handle, they should be removed to small pots, and be grown close to the glass in a cool house. In order to keep them healthy and strong, they must not be left to become badly root-bound before they are again removed to larger pots. Another shift is advisable during the summer, so that they may become established in 6in or 7in pots, in which they will stand the winter. There is no advantage in getting the plants larger than this the first season, as the winter is a precarious season for *Humeas*. I have on several occasions grown two batches, the first composed of strong, early plants, which, in order to keep them going, had to be placed in 8in and 9in pots in the autumn; the second lot, smaller and later, being wintered in 6in pots. Many of the first lot died off during the winter, and others lost a good proportion of their lower leaves, while the second batch kept green and healthy through the dull season, and in the Spring were removed to 8in pots. They then grew away strongly, and were clothed with healthy, green leaves down to the pot.

If the plants are well grown and healthy, the plumes will make their appearance early in the summer, and they may be used for conservatory or room decoration, though for the latter purpose they do not last long as a rule. In the flower garden, *Humeas* are most effective in isolated positions or when planted

in the centre of beds which are furnished with plants of a dwarfer character. The plumes may be cut off in the autumn for winter decoration or for the purpose of obtaining seeds for future sowing. The plants sometimes also last through the winter. *Humeas* are susceptible to attacks of green fly when growing under glass, and steps should be taken to check the fly as soon as it appears by fumigation, as, when the leaves become dirty and sticky from the pests, it detracts largely from the appearance of the plants. I urge no originality for the *Humea*, because the plant is old and generally well known, but I maintain that there are numerous places where, if it were grown, it would not fail to be appreciated.—G. H. H.

Winter-flowering Begonias.

This name is the one generally applied to the beautiful varieties, obtained by crossing *B. socotrana* with some of the tuberous varieties. Flowering as they do in mid-winter, their richly-coloured flowers are becoming well-nigh indispensable for conservatory and greenhouse decoration. The plants having been given a short period of rest in a cooler house must now be placed in a warm moist temperature to start them into growth. Syringing several times daily will provide sufficient moisture to start the plants into growth. Leave three or four growths on each plant, and insert the remainder as cuttings. These will root readily in light sandy soil in a close propagating



Eriostemon affinis.

frame. Having started nicely into growth, the plants can be repotted. Shake as much of the old soil from the roots as will come away readily, and place in a size smaller pot. Use a compost of two parts fibrous loam, one part peat, and one part leaf mould, adding a little dried cow manure or manure from a spent hotbed, broken charcoal, and sufficient coarse sand to make the whole thoroughly porous. Pay special attention to shading and the maintaining of a moist atmosphere. Shift the plants on into larger pots as required. A good selection of sorts should include *Ideala*, single rosy salmon; *Ensign*, semi-double carmine; *Winter Perfection*, semi-double rose, strong grower; *Julius*, double rose-pink; *Success*, semi-double, cerise; *Mrs. Heal*, semi-double, rose-red; and *John Heal*, rose-carmine.—O.

Diseases of Plants.

Apple-tree Mildew.

The disease known as Apple-tree Mildew (*Sphaerotheca mali*, *Magnus*) is a close ally of the Hop mildew, American Gooseberry mildew, and Rose mildew. It is very prevalent, and is one of those pests likely to accompany Apple trees to all parts of the world, as the mycelium is believed to tide over the winter in the bark or between the bud scales, and thus escape detection. The winter or ascigerous form of fruit is everywhere rare, and in this country has only once been recorded as occurring in very small quantity in an orchard at Mortlake. This form of fruit is certainly too local in its occurrence to account for the universal distribution of the mildew in the spring, which must, therefore, originate either from the conidia or summer form of fruit, which would imply the power on their

part of germinating the year following their production, or from hibernating mycelium. For the former of these two alternatives there is no precedent.

DAMAGE DONE.—As a rule the fungus completely checks the growth of the branches, and, consequently, all the leaves that under normal conditions would have been scattered at intervals on a long shoot, are crowded into a rosette at the end of a branch of the previous season. Such leaves are stunted in growth, and covered with a dense white powder, consisting of the summer form of fruit of the fungus.

When the fungus is present in less quantity in the spring, the growth of the shoot is not checked, and the scattered leaves bear a small amount of mildew only.

The disease is much more prevalent on old or full-grown trees than on nursery stock, and when present on the latter rarely arrests the growth of the branches.

PREVENTIVE AND REMEDIAL MEASURES.—1. When the disease is present in its worst form, the only certain method of arresting its progress is to cut off and burn all the infected rosettes of leaves. The cut should be made about 2in behind the tuft of leaves. Trees that have been treated in this manner throw out healthy branches and remain free from the disease.

2. When the disease appears in a mild form on the scattered leaves, the tree should be sprayed with a solution of potassium sulphide (liver of sulphur), 1oz dissolved in two gallons of water.

Infection of the leaves only takes place when they are quite



Primula marginata at base of rockery.

young, and then is the time to look for the mildew. On the first symptoms of its appearance spraying should be commenced. If this opportunity is neglected and the mildew is allowed a start, spraying may be considered useless.

3. It would under all circumstances be advisable to spray trees where the disease had previously existed, commencing when the leaf-buds are expanding.

4. No definite proof is as yet forthcoming as to whether insects assist in distributing the spores of the fungus, or aiding in its attack in any other way. It is, however, quite certain that mildew is most abundant on trees that are infested with "woolly aphis" and "green fly," consequently these pests should be dealt with. (See Leaflets 34 and 104.)—The Board of Agriculture Leaflet, 4, Whitehall Place, London, S.W., January, 1908.

Primula marginata.

Though now out of flower, this pretty Piedmontese Primula is still highly attractive by reason of its sulphury-edged, serrated leaves. Its habit of growth and its character as a flowering plant is illustrated above, where it is shown at the base of a boulder, sheltered, and facing the full sun. The flowers were at their best a month ago, and are now entirely past. The flowers are pale heliotrope-lavender, about 4in across, six to nine on a scape, all with powdery throats. It is a most attractive Swiss alpine species, only reaching 3in-4in high. It likes a moist sandy loam with its roots in rockery chinks. There are several varieties.

Narcissus Bedouin.

On page 449 we illustrate at its natural size a flower of the new Narcissus Bedouin. Messrs. Barr and Sons, King Street, Covent Garden, and others also, have shown this, quite one of the largest and most effective of the newer Narcissi. Its pale creamy perianth and vivid red cup are each splendid. The variety has not been shown for award in London, but won distinction at Birmingham this year.

Market Gardening Notes.

A GOOD RHUBARB.

All last week in Covent Garden, Dawe's Champion Rhubarb was selling freely at top rates, 3s. per doz bunches. In conversation with Mr. W. Poupart, of Twickenham, he speaks very highly of it from the growers' side of the question. The stalks are long, of good dark colour, freely produced, and early. Competition, and keen competition, too, is the order of the day, and the above Rhubarb is without doubt a leader.

LOW PRICED NARCISSI.

The bad weather has left its mark on much that has been sent in this week, the bulk being very cheap to clear. On May 7 I saw Barri conspicuus, Grandee, Emperor, and Empress, from Wisbech, cleared out at 1s. 6d. per gross bunches. All the week ornatus from Twickenham has been selling at 3s. per gross bunches. In the French market, 1s. 6d. to 2s. per gross bunches has been the auction figures. The first cause of the low price is the faulty condition of much, combined with the large supplies. Ground that was formerly given up to Cabbage growing is now devoted to Pheasant's-eye Narcissi. Of course, there is the natural increase of bulbs, which have a market value. Still, the growers' position is to-day not a rosy one. Best glass house flowers were 6s. per gross bunches to-day (May 7). Narcissus Burbidgei sold up to 2s. per dozen bunches; a very choice line.

POLYANTHUS TRADE.

The season was late in the start, the result being that at the end of the fortnight sales, trade is done. The season usually lasts a month, but now the blooms are getting past their best. The above only illustrates how the weather affects our marketing season. Improved strains are now being sold, some of the very best coming from Mr. J. Bruckhaus, of Twickenham.

CUT ROSES.

A very full supply; demand not good. One grower sold forty-two dozen long Liberty's for 40s. Morning cut "Général," 1s. the general price per dozen. "Mermets" have not "taken" this year, Chateau being the best selling. "Perles" are about 9d. per bunch; Druschki very fine, but 2s. will buy the best long-stemmed ones. Not one day has there been a general call on any class of Rose, and growers are despondent.

BUTCHER'S DISEASE-RESISTING CUCUMBER.

I have previously, in 1907, reported very favourably on the merits of the above. Calling at the Finchley Nurseries, Mr. Trantum specially called my attention to eight houses of this variety ready for cutting. House for house they compare very favourably with Rochford's. All who are growers know that most varieties, after the first half-dozen straight fruits are cut, have a tendency to be crooked. "Butcher's" is far in advance of this. It is a real handsome Cucumber, of good colour, and free-bearing.—STEPHEN CASTLE.

Some Royal Flowers.

Probably it would not be difficult to write an article giving a description of what monarchs—kings, and queens too, but chiefly kings—have done to advance horticulture during the later centuries of our era. Certainly this has been something kings might do for the people's benefit, as well as for their own credit or advantage. When gardening flourishes, the tables are better supplied, the homes adorned; culture and refinement progress; while neglect of gardening tells of a country's decline or unrest. But something might be said on the other side; and we might tell of some monarchs whose reigns have been dis-

astrous to the arts and sciences. They have disheartened their subjects, and arrested intercourse with other countries by long wars; also they have burdened them with heavy taxation on various pretexts; so that the topic is just as well left alone.

Passing to one of more present interest, we find it a noticeable fact that a large number of flowers has been linked with royalty; it may be with individual kings and queens, or with an historical family. Monarchs may have a fancy for some flower in particular; possibly for two or more. A flower may by accident be linked with some notable event, which, in after years, leads to its being adopted as a symbol. There seems to be no doubt upon this point, that the Violet is Queen Alexandra's favourite flower; and it is also said that the Rose is in special regard with King Edward, at least, he is known to have one frequently as a button-hole. The Rose has always been considered a right royal plant, and is called queen or empress of flowers. Though amongst the ancients the Rose and the tall Lily were supposed to be rivals for pre-eminence, there is something majestic about a fine Eastern Lily. Even the low-growing Violet has been called "Queen of the groves." It was adopted as a badge by the adherents of the Napoleons, and friends of the dynasty, who are far off, still send floral tributes to the tomb of Napoleon. Under some circumstances, this flower was regarded as ominous, perhaps from the old myth, which dated it from the tomb of the goddess Io. About the West of England people have an idea that it is unlucky to bring a solitary Primrose or Violet into the house.

Long before the Rose was adopted as a sign by the rival Houses of York and Lancaster, the flower was associated with England; probably also with its monarchs. Among the tavern signs of Old England, a very common one in town and country was that of the "Rose and Crown." By the Romans it was regarded as the most noble of flowers; symbolic of affection and of silence, a luxury for the wealthy, hence very appropriate to royalty. When the nation split into two parties during the fifteenth century, the choice of different Roses by the Yorkists and Lancastrians was a likely event. So under the Red and White Roses, usually displayed on their helmets, Englishmen fought each other through thirty years. Old superstition regarded white Roses unfavourably, and indeed most white flowers, their pale colour being suggestive of sickness. White Roses especially were often strewn on funeral biers. Anyhow, the experience of the Yorkists, who wore this Rose, proved to be unfortunate finally, since their opponents gained the ascendancy. Henry of Lancaster, while he was a wanderer in peril, chose the Forget-me-not as a token for his followers. The unhappy Margaret of Anjou, wife of Henry VI., when young, chose the Daisy as her own flower. Happier was the Margaret of France, who also adopted this flower for emblem, and who, in plesantry, was called by her brother, Francis I., the "Marguerite."

The story goes that after the Battle of Bosworth Field, there was found in a Hawthorn bush a small crown of gold, which Richard III. had worn as a crest on his helmet. This was placed upon the head of the first king of the House of Tudor, and the fruiting Hawthorn henceforth became their device. But the personages of the House had still a great regard for the Rose, of which we have proof from the frequent display of the flower in a great variety of designs, dating from the sixteenth century. By the ill-omened Stuarts the White Rose was chosen as an emblem, and the 10th of June was called White Rose Day, because then the son of James II. was born, who never lived to be any more than a Pretender. Older

associations connected the Stuarts, no doubt, with the Thistle of Scotland.

The Thistle, like the Shamrock, has been frequently discussed, and various suppositions made as to which species is the true Scotch Thistle. The anecdote, which carries its story back to the times of the Danes, might suggest some low-growing plant. We find the Carline Thistle has many supporters yet, but only slight probability. It is also certain that the Melancholy Thistle may be seen well depicted on shields or monuments of the olden time. That handsome, scented species, the Musk Thistle, has been suggested, and the Spear-headed Thistle does not seem unlikely to be the plant that was a sign of the power of resistance. Sir H. Nicholas traces its history



A beautiful new Narcissus, N. Bedouin.

Shown by Messrs. Barr and Sons. Pale yellow perianth, orange-red crown.

back to King James III.; at least an inventory of his jewels mentions some adorned with Thistles. Dunbar, in his poems, dating about 1500, refers to the plant as the natural emblem. Queen Anne adopted the Thistle as her device, and there was a popular saying, due to the victories of the Duke of Marlborough, that the Lily of France had to yield to the Thistle of Queen Anne of England. William III. chose the Orange Lily, though the Marigold was substituted. The colour red, or yellowish red, became the emblem of party, and even a Carrot might be significant in Holland.

But we pass to the Lily of France, and there we have indeed a big subject for discussion. What was the Fleur-de-Lys, or Fleur-de-Luce, or Fleur-de-Louis, the last being probably the true name? It would be something if one were able to decide upon its original colour; but white, golden, and purple have had their advocates. Old shields and helmets have furnished

many illustrations of the Fleur-de-Lis, and most certainly appear to show that the plant was not a Lily, but a species of Iris. Nobody is able to carry its history farther back than the times of the Crusades with certainty. But the earliest representations of the royal flower closely resemble an Iris, supporting the tradition that when Louis VII. started for the Holy Land, he took as emblem a blue or purple Iris, probably the common *I. germanica*. Though there is another tradition, believed in by those who think the Lily was white, and French Crusaders bore it upon their banners as significant of the purity of their faith. Then, from Tasso calling the French "Golden Lilies," and other references to a yellow national flower in more recent centuries, some have favoured a golden Lily, perhaps *Lilium bulbiferum*.

Britain, too, has its connection with the Fleur-de-Lis, whatever the plant was, for Edward III. added this flower to the arms of England when he became the nominal King of France, about 1340. At first the Lily was only placed in a quarter of the shield; then Henry V. gave it three-quarters, but this was not continued. At the accession of George I. in 1714 it was still visible on the royal shield, and, in fact, remained to the year 1800. Though removed from that escutcheon, the Fleur-de-Lis figures on other coats of arms belonging to British gentry. Verily, a fatal flower to France has the Iris or Lily been—a cause of bloodshed like the English Rose. During the Revolution, hundreds of persons were put to death because they had been seen wearing the emblem of royalty, and sculptured Lilies were ruthlessly defaced.

We can only briefly refer to the Broom, adopted by the Plantagenets for their emblem flower, which waved upon their helmets on many a battle field, as the *planta genista* is supposed to have originated the family name. History is said to date its use from the time of Geoffrey of Anjou, father of our Henry II. By one of the French monarchs, Louis IX., a new order of knighthood was founded, the members wearing chains formed of the Lily and the Broom, the latter flower representing humility. Queen Christian of Sweden had a partiality for the Amaranth, known in old gardens as Love-lies-bleeding; and at her Court both sexes wore medals, having the flower in enamel. Even the humble Reseda (*Mignonette*) has found an admirer in royalty. A Saxon prince was so charmed with the fragrance of *Mignonette* that he placed the flower on his ancient crest.—J. R. S. C.

Trees and Shrubs.

The Spring Beauty of Flowering Trees.

Those of us who, as children, pinched off the young green shoots of the Whitethorn, and ate them with a solemn incantation (now forgotten, so far as the writer is concerned) have many an early scene brought back by the scent of the "May." And, somehow, the splendid varieties of Thorn which the nurserymen give us have not so intimate an appeal. We realise their beauty to the full, but it is not without a conscious effort that we convince ourselves that we find greater pleasure in them than we used to in the old Quick of the hedgerows. The nurseryman, however, is wise. He mounts his glorified Thorns onto tall, standard stems, so that we can set them in shrubberies with a footing of evergreens, and see their lofty heads, fiery with hot crimson clusters, drooping over a glittering mound of silver variegated Maple, or a translucent pyramid of Holly.

He deals similarly with other beautiful garden varieties of familiar flowering trees, not forgetting the two great genera upon which we draw for fruit, namely, *Pyrus*, which gives us the Apple and Pear; and *Prunus*, which gives us the Almond, Cherry, Apricot, Peach, and Plum. He is teaching us, in connection with these, how mistaken we are when we take the merely utilitarian view of them; and how great a feature of beauty and interest we can add to our flower gardens and shrubberies if we will use them for ornament alone.

Shrub lovers do not hesitate to adorn their borders with the Flowering Currant, *Ribes sanguineum*—why should they fear to plant the Flowering Apple, *Pyrus Malus floribunda*? The soft, rosy suffusion which overlays the milk-white flowers of this delightful little tree gives it just that warmth which takes life and depth from the first mellow light of dawn. The morning seems to linger round it, with the hovering devotion of a mother, touching it ever so lightly with tender lips. Never was tree so prodigal of bloom as this wonderful flowering Apple. It flings out blossoms as freely as a diamond flashes out light. It wreaths itself in flowers from trunk to tiniest baby-finger tip of shoot. It stretches out long arms laden with floral largesse. There is another splendid May-blooming ornamental Apple called *Scheideckeri*. It is deeper in colour than *floribunda*, being a bright pink, and it flowers with the same extraordinary profusion. When we borrow ideas of floral decoration from the Japanese, as we have borrowed *jiu jitsu*, we shall cut yard-

long branches of these trees clothed in blossom for our rooms where we now toy with sprays of Lily of the Valley.

It is but a step forward to the ornamental Crabs, also varieties of *Pyrus Malus*. Here it is a case of the wild May and the garden Thorns all over again. The nurserymen offer us Crabs with flowers far larger than those of the wilding, more beautiful in colouring, and followed by finer fruits. There are few trees more interesting, alike from their spring bloom and their summer fruit. We buy standards of them, which we set in the shrubby borders to give tall heads of brilliant bloom. The Siberian is perhaps the best known, but there are three other varieties at least as beautiful, namely, the Dartmouth, the John Downie, and the Transcendent.

The bloom of the *Prunuses* lacks, on the whole, the brilliance of the *Pyruses*, but there are many lovely things among the Cherries and the Peaches, and the Almonds are both early and bright. The suburban gardener has a great liking for the Almond, because it thrives so well near towns, and is in bloom as early as April. But he may not know that there is a much finer form than the common Almond, named *macrocarpa*, nor be familiar with the large and beautiful *Davidiana*.

The commercial varieties of the Cherry are beautiful enough when the huge trees one sees in the orchards around Sittingbourne are full of snowy blossom. These giants whiten the whole countryside for a few joyous days in April, and then their beauty fades away. The double-flowered garden forms are more lasting, and the tree lover will wrestle with the somewhat forbidding names which the botanist gives them for the sake of their intrinsic beauty. There is a beautiful double white Cherry which has been struggling for years under a burden of names, but is slowly emerging at last. *Rhexi flore-pleno* is the simplest of its latinities; if one follows it through the dictionaries and catalogues one finds that it is synonymous with such truculent terrors as *caproniana multiplex*, and *caproniana multiflora*. There is a double form of the Bird Cherry (alas! in one sense all Cherries are bird Cherries) called *Padus flore-pleno*, and at Kew one sees a beautiful Cherry with drooping branches laden with blossoms, named *Mahaleb pendula*.

The Peaches give us some of the most exquisite of flowering trees. Gardeners force them in pots in a small state, and exhibit them at the early shows of the Royal Horticultural Society at Vincent Square. There one sees plants three or four feet high, with long, slender branches thickly studded with double white or pink flowers like huge double Daisies. Botanically, the Peach is *Prunus persica*, and when the double white is tabulated in official sheets it becomes *flore albo pleno*; while the double rose is *flore roseo pleno*. The variety *Clara Mayer*, double red, is another lovely Peach.

Perhaps the prettiest Apricot is the double three lobed, known as *triloba flore-pleno*. It has large double flowers of the softest possible tint of silvery rose. The handsomest flowering Plum is the double form of the common *Prunus communis*; but the most popular Plum is certainly one grown entirely for its dark foliage, which is as handsome as that of the purple Beech. Botanists call this *Prunus cerasifera atropurpurea*, but the nurseryman calls it *Prunus Pissardi*.

The Spring charm of the fruit trees is enhanced if, instead of being used exclusively in shrubberies, they are grown as isolated specimens or in small groups, and the ground beneath them carpeted with low blossoms, such as that of Crocuses, Scillas, Anemones, Primroses, and Violets. The adoption of this simple and inexpensive plan gives delightful pictures of vernal beauty.

Only want of space deters me from commenting on the beauty of many of our best varieties of commercial Apples as ornamental trees. They must not be overlooked.—W. P. W.

Hardy Plants.

Sidalcea candida.

Probably some knowing ones would not be inclined to recommend this "hardy, vigorous perennial," as having a fault on the score of over-vigour; at least, because of its spreading, ramifying roots. But it is a dainty and pretty white border plant, flowering for many weeks in the height of summer, and growing in comparatively poor and dry soil. It is encouraging to see this, but particularly *Sidalcea Listeri*, which is pink, named in an article in "The Times" as one of the best fifty perennials. *S. Listeri* gives less trouble and is superior to *S. candida*. Seedling plants are said to be the most satisfactory.

Erinus alpinus.

For growing on walls or dry chinks, in the rockery, or even as an edging to a path among stones, this is a gem, deserving much more attention than it receives. Coming from the Pyrenees, no difficulty need be experienced with its growth.



A hardy, vigorous perennial, *Sidalcea candida*.



The Tiger-moth Caterpillar.

Anent the Tiger caterpillar, it is remarked in your notes, page 435, that it occasionally feeds on the blossoms of fruit trees. Now, this species is an old friend of mine, and I have never noticed him guilty of such improper conduct. But I admit it does not follow that such is not the fact, though I have not seen it; yet this is opposed to the usual habits of the caterpillar. During Spring it is mostly noticed on low plants. About gardens it shows partiality for Primroses and Forget-me-not. It does, however, occasionally ascend shrubs, the Rose for instance, or the Hollyhock. One curious circumstance in the history of this species is that not only the caterpillar, but the moth itself also, have been credited with urticatory properties.—ENTOMOLOGIST.

Cement Benches.

My attention was drawn to a very pertinent remark made by your correspondent writing under the heading "Cement Benches" in the issue of April 30, page 402, when he gives the opinion that cement will supersede wood in greenhouse construction. I wonder if he has any knowledge of the cement sill, manufactured and patented by an enterprising Maidstone firm? It has great advantages over the ordinary wooden sill, and is especially useful in forcing houses, where the excessive moisture so necessary to good cultivation soon rots away the lower parts of the structure. In this method, by an arrangement of brass supports, no woodwork is allowed to touch the sill, and so the rotting due to moisture and drip is obviated.—HARRY RABJOHN.

Colour Chart for Sweet Peas.

An open letter to the hon. secretary of the National Sweet Pea Society:—

Among the interminable discussions which take place in the world of Sweet Peas with respect to the truth, or otherwise, of varieties, nothing stands out more sharply than the difficulty in which the disputants find themselves, when they wish to name or describe a colour. Now this is not difficult to understand when it is remembered how many and various are the conditions necessary to the true judgment of colour.

Setting aside for the moment the question of colour-blindness (which is much more common than is generally supposed), the colour of an object depends on the light it sends back to the eye of the observer, and, as much of this light must be reflected, it further follows that the colour is greatly dominated by the nature of the light in which it is seen. Moreover, the colour is very greatly affected by other colours placed in juxtaposition, either harmonising or contrasting. Again, the eye, when fatigued, or whenever any given colour has been under observation for some time, loses much of its normal nicety of judgment. Partial colour blindness is present in only about four per cent. of the male population of these islands, but without doubt, some slight degree of this defect is much commoner. Now it is a significant parallel that the most commonly confused colour is red, and that the greatest controversies amongst Sweet Pea growers are those which relate to the pink and scarlet sections.

Now if these premises be granted, and I believe them to be incontestable, is it not a pity that there exists no standard by which these colours may be judged—a scientific standard erected by competent and recognised judges, which would enable the tyro and the expert alike to accurately describe the colours of his blooms—in other words, a standard colour chart, produced under the authority of the National Sweet Pea Society? Various and many have been the objections raised to the proposal that the society should take this course, and all are more or less based on its admitted difficulty. But, Sir, a great society like the N.S.P.S. is destined to become—and even now, is—should not be turned from so eminently desirable a project on the mere score of the many obstacles to be surmounted; rather should it concentrate all its energies and overcome them. And it may further be urged that in dealing with the question of colour in a firm and unbiased manner, the society is in reality only forestalling and dispersing the grave danger of the over-multiplication of varieties that are no varieties, and the consequent reaction to disgust on the part of all growers, amateur and professional alike.

To deal first with the question of colour names, the difficulty of agreement on them would be met and solved by the very fact that this chart would be the standard of the Sweet Pea

world; or, if you like, it would be evaded by the very easy plan of numbering the shades of colour in lieu of naming them. a course which would render agreement on the nomenclature unnecessary, and thus avoid clashing with preconceived ideas. The fact of other charts differing in any respect would in no way affect the issue; is not, in fact, relevant. This and no other would be the Court of Appeal in the matter of Sweet Peas. It has been urged that to issue such a chart under authority would necessitate altering the description of practically every florists' flower given in catalogues. The answer to that, to my mind, is that the project deals with Sweet Peas alone, and that any such alteration as that foreshadowed, although it would certainly be paying a high compliment to the society, would be totally unnecessary. It has also been said that a sister society cannot agree over its highly elaborate French chart—yet it is admittedly easier to match colours than to name them offhand, and the said society certainly agrees on its colours eventually. It may be freely admitted that many existing charts are worse than useless, but it may be fairly said that no colour chart has yet been issued with quite our idea in mind. Such a chart should have special characteristics.

In the first place, each shade should be not less than three square inches in dimension, so that a good-sized bloom might be laid thereon for comparison. Then no more than the various shades of any one given colour should appear on a page, for the reason of alteration by contrast or harmony referred to above. Again, the surface of the paper employed should be matt, and the colour of the purity and lack of shine best produced perhaps by washes of water colour on "Whatman's hand-wove" paper. As before said, the shades should be numbered, and not named, though an index giving names might be added if desired. It would also be useful to illustrate the differing forms of the flower and name them, as there is occasional confusion displayed in this respect, though this is not germane to my subject. In addition, the society might adopt some standard method to be followed when assaying colour, as some experts will take a single bloom and analyse it; others bunch a few in the hand, shading them from direct light; others again put a bunch into a vase and judge by the massed effect.

To conclude, there is no doubt that the production of such a chart would be a long and arduous undertaking, but I venture to say that the resulting gain would be great, out of all proportion to the effort we are called upon to make. I therefore beg to offer a formal proposal that a small committee be appointed to deal with the matter, and that a special fund be opened and placed at its disposal. To this latter I do myself the honour of offering the first guinea, and remain, dear Mr. Curtis,—STANLEY BROOK.

18, St. George's Place, York.

Brentford, May 9, 1908.

The question of a colour chart for Sweet Peas has been discussed at some length in committee by our society, but no decision has yet been arrived at. Ways and means appear to be the chief stumbling-block, because it would be of little use if the N.S.P.S. brought out a colour chart at a price beyond the reach of many of its members. The "Repertoire des Couleurs" is a fine colour chart, but the price is prohibitive. To be effective the colour chart must be cheap enough for every flower lover to purchase, so that when a flower is described by its raiser or introducer, or in the records of the society, according to the chart, everyone would be able to turn to his or her colour chart and at once understand what colour the description indicated.

Personally, much as I would like the National Sweet Pea Society to have the honour of bringing out such a colour chart, I am afraid the cost of production would be too great for us to undertake, even with kindly help from friends as interested as Mr. Stanley Brook. But is not a colour chart rather the work of a combination of the floricultural societies? What a splendid thing it would be if for, say, 5s., we could have a colour chart that was at once the colour law for the Rose, Dahlia, Carnation, Chrysanthemum, Sweet Pea, and other National Societies. If the matter is beyond such a combination, then might not our splendid Royal Horticultural Society produce such a chart at a moderate price? Surely it might, and we should then have a colour chart for all our floral descriptions.—CHARLES H. CURTIS, Hon. Secretary, National Sweet Pea Society.

Sheffield Horticultural Society.

Much as I respect Mr. Lewendon's suggestion, this is a matter that does not concern him. In reply to Mr. Cook, I still maintain my previous statement to be correct. He is now quibbling. He said distinctly he "had been a member six or seven years, and only once did the society pay its way." I did not attend the final meeting because I had no notice of it. As to the Chrysanthemum society and the neglect I referred to, I tried to "get redress in a straightforward way,"

but when the matter was mentioned to Mr. Cook, the reply received was not "in the interest of good feeling." I know others who, like myself, have not yet received the year's fixtures, and how can we prepare to exhibit when we don't know what exhibits are arranged? There are other matters we are kept in ignorance of, and Mr. Cook will find that the subscription list will not increase by these methods. Myself and friends were exhibitors before Mr. Cook knew the society. I still assert the right to use my own initials, which are—B. A. W.

[This discussion may now cease.—Ed.]

"French Gardening."

Are our horticultural journals, like our horticultural practitioners, all behindhand? Has it been left to the "Daily Mail" to teach us what is possible by methods of intensive cultivation to make a tiny market-garden or holding pay? French market-gardening beats English market-gardening—that is what we are told, and must believe. The secret of the Frenchman's success (and he does succeed) I am convinced, is not his methods so much as his capacity for taking pains. Never was the definition of success as "an infinite capacity for taking pains" more true than when applied to the commercial French *marais*cher. I have heard from a good source of an English firm who commissioned English and French market growers respectively to produce a certain quantity of early Cos and Cabbage Lettuces for them this Spring. The English market growers were, as a rule, notably successful, but they had to write and say that the weather had beaten them on this occasion, and their consignments could not be sent at the date required. The Frenchman sent his Lettuces in the pink of condition, true to contract. The produce, in the latter case, were grown under cloches (bell-glasses). The seeds, I think, were sown in November. Early in February the young plants were transferred to the specially-prepared sort of semi-hotbed in the open, covering a considerable area. Cloches were placed over them, the tops being about 3in above the plants, thus drawing them up. As growth proceeds, the cloches are raised, little by little, and the dung linings are well maintained. Three and four times per day the grower will go over his glasses, however numerous they may be, and tilt them in accordance with any change of breeze or wind. The whole system is one of infinite pains. Are English small-holders likely to be so attentive, or to take the trouble?—R. S.

About twelve months ago there was an advertisement in one of the gardening papers, and I think it read something like this: "Anyone interested in intensive cultivation, kindly write to" an address given, but I forget where it was. However, I for one did not write; perhaps if I had, I might have received some good information—or I might have got a pamphlet recommending some special manure! I, and thousands of other horticulturists in England, are intensely interested in intensive cultivation. When I say intensive I mean that we strive to get all the produce (and of the finest quality) from glass houses and other parts of the garden that is possible; but at the same time we have always to bear in mind that if we overcrop in any one year, we have to suffer the penalty the year following by having poor crops. If Vines, Peaches, Nectarines, Plums, Apples, Pears, or other trees are overlaid with fruit, the fruit is seldom finished properly, and the following year the trees will show the effects of such bad treatment. Therefore practical men prepare the soil by deep trenching and manuring as a foundation for after cultivation, and scheme by different methods of treatment, partly by pruning and thinning the fruit so as to balance the trees, that they are nearly safe for a crop of fruit annually, especially with indoor fruits. Vegetables and flowers should have well trenched ground, and plenty of space and manure. Also arrange that you do not grow one kind of vegetable on one piece of ground in successive years when possible.

The French method of cultivation, judging from some newspaper notes I have received, is far more intensive than anything that I have seen in England. The report states: "The return from one crop in one frame"—and 1,000 frames were employed—"was 10s. 6d." These figures mean that the capital outlay on a garden may be more than returned in a single year, with a promise of several hundred pounds clear profit in after years. The report states also that stable manure is getting so very scarce in Paris that many Paris market gardeners are meditating a migration to England. Well, I have no doubt they will be able to get plenty of land and stable manure; also perhaps more competition in a Free Trade country than they do in their own. I am sure of this, there will be no lack of capital to carry on such places with such abnormal profits, especially when we read that £200,000,000 of British capital has been invested in foreign shares in the last two years, and this means that there will be large dividends returned to England, and also a great many goods sent to England to oust British labour. Therefore, if anything can be invented to keep capital at home,

and to find labour at home, it will be a great boon to market gardeners and all other Englishmen.

I for one, however, cannot see how the abnormal profits as reported can be made from an acre of Carrots, Strawberries, Asparagus, Cucumbers, and Cauliflowers; neither should I advise anyone to invest capital and expect such inflated returns. I am sure there are very few market gardeners who can show such profits as £625 from an acre, as the newspaper states. Sometimes people are lucky for a season to have one thing of value and make good profits. Potatoes at the present time are £5 per ton, next year they might be at £1; but we must take the average in market gardening, as in other businesses, to come to actual facts. I have also before me an illustrated paper giving views of a place in the South of England where the French method is practised. Above the photographs in the paper is printed, "Gold from the soil—£500 an acre by French methods of cultivation." But at the bottom of the page I find the place was only started last November. They seem to me to have soon got to know their profits. There are two ladies who are the principals, and the French gardener; also eight or nine girls employed there, and they are designated students. I wonder if these pay premiums to help to make the handsome profits? Or are they under-gardeners who receive remuneration?

In another paper I notice that the superintendent of one of the Government reformatory schools had started a small French garden, and that this was going to be followed by 200 schools in the same way. If the Government, County Councils, or whoever is in authority, would make a small grant to each village horticultural society to be given in prizes, in my opinion they would do more good. Children and adults would learn more by competition about practical gardening than ever they would by tuition at school or by horticultural lectures. What horticulturists require at present is earlier and better seasons; also a small tariff on foreign imports, as, owing to our usually late climate, the foreigner who has an earlier climate is able to place earlier produce on the English market, and he thereby procures the very best prices. I know of another case where a firm built, two or three years ago, an acre of glass houses, and engaged a specialist who was going to grow three crops a year, and have a clear profit of £1,000. However, the specialist and two more who followed him have left the situation, and I have not heard of the £1,000 per year profit having been realised.

I notice also that at Thatcham it is found worth while to cart the manure fourteen miles, and that each frame requires one ton of manure in the first year, and half the quantity in succeeding years. Here we have to pay 5s. per ton, and at a cheap rate the cartage would be 10s. 6d. for fourteen miles' journey. That would be 15s. 6d. per ton. Of course, if they can take a cart or waggon full of vegetables when they go for manure, it will reduce the cost. I should calculate 200 frames to the acre. That is about £155 for the first year, and half that for succeeding years for manure and cartage. I notice also that those who are "in the know" wish to keep the method a secret. Well, I do not blame them. Why do not they apply for a patent or protection, especially if they are going to procure 10d. (tenpence) a-piece for Cauliflowers? When such news as I have described above is published in newspapers, one is led to think that English horticulturists must be very far behind in their methods of cultivation.

I believe the British Gardeners' Association was formed to [try to] improve the position of the gardeners in Great Britain. Now is the chance! If the members can master the details necessary to produce the results as stated in the foregoing, they will soon improve their position, and remuneration also.—T. PARKIN, Grimston Court.

We extract the following from articles in recent issues of the "Daily Mail." "The Frenchman's method is the continual mixing and compounding of the top soil. He has nothing to do with 'trenching' or 'bastard trenching,' the slow and laborious methods on which English gardeners have chiefly relied. You may call his method, if you will, superficial. In dealing with new ground, he begins by digging out the top soil. This he mixes and remixes with the shortest manure, till in a year or so it is as black as a coal mine. A thin surface of this soil is laid on the best manure, and underneath this again is a fresh manure, so that you have three grades of soil culminating in the surface soil, into which each will be presently converted. On the top of these layers are either bell-jars, about the size of the old-fashioned skep for bees, or frames, which differ from English frames both in cheapness and simplicity. It is an important detail that they are made to hinge, not to slide. For the most part, with each frame is supplied a rye-grass mat for use on cold nights. That the glass is not the whole secret may be seen by the astounding amount of the harder sorts of vegetable, Lettuce and other greens, grown in the small open spaces left between the cloches or bell-jars. The garden was divided by screen fences made of reeds let down in between two

lines of double horizontal laths. On the other side of the path were the frames. A foot of soil is dug out. In the rectangular pit 2ft or so of stable manure is placed, and on the top of this lies a "spit"—8in or so—of "golden soil." How that gold was fused, three heaps at the top of the garden in part explained. One was fresh manure just carted in, one was year-old manure, taken from the pit under the frames after it had done its six months' work, and the third heap was two and three-year-old manure. This was, so to speak, clean to touch. It had changed from manure to vegetable mould. . . . A man with ten children may grow passably rich on less than five acres, and provide good wages to two men. He can arrive at this pitch by increasing his frames as his means afford. Many begin with as few as ten frames, costing less than £5, with a few mats at 1s. 8d. each, and ten ton of manure. Last year, an exceptionally good year, the [Dutch] beginners recovered all capital, and bought more frames."

At the exhibition of the Royal Horticultural Society on April 28, Messrs. James Veitch and Sons, Ltd., sent a collection of Lettuces "grown under the French system"; that is, on a warm bed or rich bed of soil, under cloches or bell-glasses. So much as £600 per acre is said to be taken under the French system; but what is the cost? The Lettuces were both Cos and Cabbage varieties, the latter being the Early Frame and Passion. The Cos varieties were Early Green Forcing and Early Market. Radishes were also shown. (Silver Banksian medal.) Vide *Journal of Horticulture* report, page 409, April 30.

The Recent Winterly Weather.

I have closely inspected the fruit trees and Strawberry plants here. Without a doubt the Gooseberry crop is ruined, so is the Black Currant crop. The earliest flowers of the Strawberry plants are black. Red Currants are certainly not improved. Apples appear quite safe; so do Pears. A great many of the Plum blooms are falling from the trees, although these were covered with blinds, nets, and mats. I do not think the frost touched them, however. What I fear is that the long spell of very cold weather has chilled the trees. At the present time (May 9) the weather is such as will incite growth. The Apple trees are just bursting into flower, and what a picture these will be! I trust we are now safe from further severe frost, and then the Apple crop will be a bumper.—T. ARNOLD, Cirencester.

Societies.

Royal Horticultural, May 12th.

An admirable exhibition was open on Tuesday last, and there were crowds of visitors. The last of the Daffodils were shown, and several lots of Tulips, including the earliest of the Darwins. Rambler Roses made a distinctive feature; also Messrs. H. B. May and Sons' ferns—a really fine bank. Another excellent feature was Mr. James Douglas's collection of Auriculas, than which he said he never had a finer nor a larger display. A gold medal and a first-class certificate were awarded to Mr. Norman C. Cookson for a splendidly-flowered plant of *Odontoglossum crispum* Leonard Perfect, with fourteen very large flowers on a strong raceme.

Fruit and Vegetable Committee.

Present: Mr. Geo. Bunyard (in the chair); with Messrs. Jos. Cheal, J. Willard, A. Dean, H. Parr, A. R. Allen, James Vert, Owen Thomas, Charles Foster, Geo. Wythes, John Harrison, C. G. A. Nix, A. H. Pearson, Edwin Beckett, H. Marcham, Geo. Kelf, W. Poupert, and J. Davies.

Our representative unfortunately omitted to make notes of the only exhibit of importance that was before this committee. This was a collection of beautifully fresh, seasonable vegetables from Messrs. James Veitch and Sons, Ltd., Chelsea, who were awarded a silver Knightian medal.

Orchid Committee.

Present: Mr. J. Gurney Fowler (in the chair); with Messrs. James O'Brien, de Barri Crawshaw, H. Little, W. Boxall, Richd. Thwaites, F. Sander, A. A. McBean, John Cypher, H. G. Alexander, Arthur Dye, Fred J. Thorne, W. H. White, H. Ballantine, Gurney Wilson, W. Bolton, Norman C. Cookson, C. J. Lucas, Harry J. Veitch, Walter Cobb, J. Wilson Potter, Stuart H. Low, H. A. Tracy, F. Menteith Ogilvie, and Frederick J. Hanbury.

Messrs. James Veitch and Sons, Ltd., Chelsea, S.W., presented *Odontoglossum crispum*, well grown and nicely flowered. One of the largest flowered *Odontoglossums* *Pescatorei* was also here; together with *Dendrobium thyrsiflorum*, *Laelio-cattleya* G. S. Ball, and a splendid plant of *Brasso-cattleya* Veitchi, bearing three splendid blooms. All the plants were fresh and healthy. (Silver Flora medal.)

Messrs. Cypher, of Cheltenham, brought *Cattleya intermedia alba*, several splendidly bloomed *Miltonias*, also good *Odontoglossums*, *Laelia purpurata*, *Brasso-cattleya Mossiae Digbyana*, and other things. *Leptotes bicolor* is interesting, and was in fine form. (Silver Flora medal.)

Mr. Maurice Mertens, Mont St. Amand, Ghent, Belgium, sent *Cattleya Schröderae alba*, and a splendid selection of the finest crossbred *Odontoglossums*. *Celoglyne pandurata* was also staged. (Silver Banksian medal.) Mr. H. S. Goodson, Putney, also staged a group, and received a silver Banksian medal.

Narcissus and Tulip Committee.

Present: Mr. Henry B. May (in the chair); with Miss Willmott, Messrs. J. T. Bennett-Poß, Arthur R. Goodwin, G. W. Leak, Harold A. Denison, J. D. Pearson, Alex. M. Wilson, Robt. W. Wallace, E. M. Crosfield, Walter T. Ware, W. A. Milner, Joseph Jacob, W. Goldring, James Walker, F. H. Chapman, E. Bowles, W. Poupert, R. Sydenham, and Chas. H. Curtis.

Mr. Herbert Chapman, Rye, brought a small choice selection, comprising *Orangeman*, *Lucifer*, *Maiden* (very charming), and several good poeticus varieties.

Mr. Alex. M. Wilson, Wisbech, also contributed Daffodils. We observed *Will Scarlett*, *Homor*, *White Slave*, *Lucifer*, *White Lady*, *Horace*, *Branton*, and *Eoster*. (Silver Flora medal.)

Messrs. R. H. Bath, Ltd., Wisbech, staged Tulips, a selection of the best of which comprised *Thomas Moore*, *Rose Luisante*, *retroflexa*, *White Swan*, *General de Cordaus*, *Prince of Austria*, *Sir Thomas Lipton*, and *Brunhilde*. They also had some good *Narcissi*, as Mrs. Vincent, *Madame de Graaff*, *Princess Ena*, and a new seedling named *Grandee*, with *Grandee* as the seed parent. *Marian* is a strong poeticus, and *Ivernica* a grand new flower, each of which will form good market flowers some day. (Silver Flora medal.)

Messrs. Barr and Sons, King Street, Covent Garden, London, sent a general collection of *Narcissi*, very fresh for the season. They also staged two varieties of the poeticus type, with green or greenish centres, probably the result of crossing with *viridiflora*. These were *Greenheart* and *Evelyn Hodge*. Others were *Sylvia*, *Polestar*, *Mme. de Graaff*, *Fire Glow*, *Salmonetta*, *Peter Barr*, and *White Lady*. Tulips were also shown, comprising *The Sutton* (almost black), *Sparkler* (crimson), *Pride of Haarlem*, *White Swan*, and *Brunhilde*. (Silver Flora medal.)

A collection of very fresh Tulips in the best kinds, May flowering and others, was also arranged by Messrs. Wallace, of Colchester (silver Flora medal); and Miss Katherine Spurrell, of Norwich, staged *Narcissi*. (Bronze Flora medal.)

Floral Committee.

Present: Mr. W. Marshall (in the chair); with Messrs. Chas. T. Druery, George Paul, W. A. Bilney, R. C. Notcutt, John Green, T. W. Turner, G. Reuthe, R. Hooper Pearson, Wm. Howe, W. Bain, Chas. Dixon, Arthur Turner, Jas. Douglas, Chas. E. Pearson, E. H. Jenkins, W. P. Thomson, Wm. J. James, F. Page Roberts, Jas. Hudson, John Jennings, C. R. Fielder, J. W. Barr, Chas. E. Shea, Edward Mawley, and R. W. Wallace.

Messrs. W. Paul and Son, Waltham Cross, arranged a glorious group of climbing and decorative Roses. The plants were grown naturally, with a lightness and grace so appropriate to this section. They were masses of flower. Huge plants of *Waltham Bride*, *Kathleen*, *Tausendschön* in magnificent colour, also *Grace Thomson*, the old *Yellow Banksia*, *Philadelphia Rambler*, and *Alberic Barbier* were noted; while on the front were *Aennchen Müller* and *Madame Paul Varin Bernier*. (Silver Flora medal.)

Messrs. J. Peed and Son, West Norwood, arranged a nice table of *Gloxinias*, the majority being named varieties. The plants were very well grown, and the flowers large and diversified in colours; certainly a fine strain. They also contributed a group of *Acers*, in which were dotted *Clematises* in variety, and *Calla Elliottiana*. (Silver Flora medal.)

Mr. W. A. Watts, St. Asaph, North Wales, had a table of well-grown *Polyanthuses*, *Primroses*, and alpine *Auriculas*. The *Polyanthuses* were rather overburdened with the yellow colours.

Hardy flowering shrubs came from Messrs. J. Cheal and Sons, Crawley. Large masses of *Pyrus Malus floribunda* proved most attractive, while branches of *Cerasus sinensis*, *Pyrus Riversi*, *Ribes aureum*, *Lilacs* in variety, and *Berberis stenophylla*, all contributed to make a really fine display.

Messrs. Jas. Veitch and Sons, Ltd., Chelsea, occupied a central position with a group of flowering subjects. Large baskets of *Hydrangeas*, such as *H. Hortensia mandschurica*, *rosea* (blue form), *Veitchi*, *Mariesi*, *variegata*, *Thos. Hogg*, also *H. paniculata grandiflora* were here. *Azaleas* *Fuji manjo* and *A. amona Caldwelli* both formed good features. A box of cut branches of *Cydonias* was also attractive. *Meconopsis punicea* and *integrifolia* were in excellent condition; while

Magnolias in variety, with Rhododendrons, completed the display. The same firm occupied a table with a miscellaneous display. A few of the best features were *Lobelia tenuior* and the variety *rosea*, a distinct rosy form. *Statice Suworowi* was beautifully grown in 5in pots. *Cinerarias* were excellent, as were also *Schizanthus grandiflora* hybrids. These were quite remarkable for their habit and fine colours. (Silver-gilt Flora medal.)

Mr. Jas. Douglas, Great Bookham, occupied an entire table with *Auriculas* in all forms. Mr. Douglas evidently did not exhaust all his forces at the national show, for the plants were quite on a par with any staged there. To enumerate a few of the best, we have *Olympus*, *Beauty*, *Heatherbell*, *Coronet*, *May Day*, *Old Gold*, *Ruby*, *Orient*, *Frank Bryan*, and Mrs. Phillips; also some well-grown plants of *Myosotidium nobile*, the Chatham Island Forget-me-not. These were remarkably well grown. (Silver-gilt Flora medal.)

Messrs. Cannell and Sons, Swanley, also had an entire table of various subjects. The homely *Wallflower* was well represented: such varieties as *Blood Red*, *Golden Tom Thumb*, *Harbinger*, *Nankeen Yellow*, *Primrose*, *Dame*, *Vulcan*, and *Eastern Queen* being on view. Some *Hydrangeas* in 5in pots attracted much attention, for the flower trusses were enormous, and the colour good. Specimen *Roses* in *Wedding Bells*, and a deeper pink variety, *Eynsford Pink*, were also staged; while a gorgeous exhibit of zonal and decorative *Pelargoniums* were exhibited in Cannell's well-known style. (Silver Flora medal.)

Carnations came again from Mr. W. H. Page, Tangley Nurseries, Hampton. The flowers were large and of excellent colour, especially *Rose-pink Enchantress* and *Enchantress*; while *Governor Roosevelt* and Mrs. T. W. Lawson were equally fine. (Silver Banksian medal.)

A beautiful exhibit of hardy flowers came from Messrs. Geo. Bunyard and Co., Ltd., Maidstone. *Aubrietias* as staged in baskets presented a beautiful mass of colour; while in the *Saxifragas*, *Rhei*, *Wallacei*, and *Guildford* seedling were conspicuous. *Primulas* of the *Sieboldi* type were also good. The quaint *Calla Rehmanni* was also noted amongst many other subjects. (Silver Flora medal.)

Messrs. B. R. Cant and Sons, Colchester, were represented by a display of *Roses* which included the decorative types, also two boxes staged in the orthodox way. *Blush Rambler*, Mrs. F. W. Flight, *White Dorothy*, and *Hiawatha* were good in their class, while some exhibition blooms of *Bessie Brown*, *Killarney*, *Bridesmaid*, *Madame Leon Pain*, and *Perle Von Godesburg* were seen. (Bronze Banksian medal.)

Messrs. Paul and Son, Cheshunt, arranged a table of flowering shrubs, *Roses*, and a variety of plants. The tea *Rose*, *Nelly Johnston*, was staged in its various colours. A nice, well-flowered plant of *Hydrangea arborescens grandiflora alba*, with *Clematis montana rubens*, and some seedling *Aubrietias* attracted much notice, while the double-flowered *Cherries* made a good display. (Bronze Banksian medal.)

Mr. F. J. Patmore, Lymington, exhibited a small collection of *Violas*, arranged in moss; but the style did not enhance the value of the *Viola*, for the blooms did not show well.

From Messrs. Dobbie and Co., Rothesay, came a collection of *Pansies* and *Violas*, also a fine strain of well-grown *Polyanthuses*. The *Pansies* were all typical flowers, representing how well they can be grown in the North; while the *Violas* were large, but chiefly of the exhibition type. (Bronze Flora medal.)

Hardy flowers were a good feature from Messrs. Barr and Sons, Covent Garden. A few of the most prominent features were *Viola pedata*, *Aubrietias*, *Irises*, such as *I. biflora purpurea*, *I. pumila* Count Andrassy, *I. formosa*, and *I. Naomi*; also *Anemones* from Palestine—a good bright scarlet form.

A beautiful table of *Roses* came from Mr. G. Mount, Canterbury, arranged in his well-known style. The centre was occupied with a splendid group of *Joseph Lowe*, flanked with *Frau Karl Druschki*, *Caroline Testout*, *Liberty*, *Catherine Mermet*, and *Captain Hayward*. (Silver-gilt Flora medal.)

Messrs. H. B. May and Sons, Upper Edmonton, arranged the finest display of hardy ferns ever seen in the hall. They occupied the entire breadth, and were of various sizes, ranging from large specimens to miniature plants. Needless to say, all were splendidly grown. Large specimens of *Osmunda spectabilis*, *O. gracilis*, and *O. regalis*, *Polystichums* in variety, *Scolopendriums* in a bewildering assortment *Athyriums* and *Lygodiums* were each in splendid form. The hardy fern enthusiasts marvelled at the cultural skill displayed. A gold medal was deservedly awarded.

Messrs. Hugh Low and Co., Bush Hill Park, had a large collection of various plants, such as *Acacia armata* staged as standards, *Hydrangeas*, some bright *Geberas Jamesoni*, *Erica Cavendishii*, *Roses* in large variety, and *Carnations*. (Silver-gilt Banksian medal.)

Messrs. R. and G. Cuthbert, Southgate, made a nice exhibit of *Azaleas*, chiefly of the rustica type; also some well-forced plants of the *Guelder Rose*, and *Cytisus purpureus incarnatus*. (Bronze Banksian medal.)

From Mr. Chas. Turner, Slough, came a nice collection of *Primulas Sieboldi* in variety. The sorts were arranged in baskets, and made a pretty exhibit. A few of the best varieties were *alba magnifica*, *Distinction*, Mrs. Ryder, *Queen of Whites*, and *Victor*. *Violas* were also staged. (Bronze Banksian medal.)

Hardy flowers came from Mr. Amos Perry, Hardy Plant Farm, Enfield, who had fine pans of *Geum Heldreichii luteum*, *Trillium grandiflorum*, *Irises* in variety, *Epimedium alpinum*, with its foliage marbled beautifully. *Trollius Fortunei plena* was also in good form, as was *Arnebia echioides*, while *Lithospermum prostratum Celestial Blue* is an improvement on the old prostratum.

Messrs. T. S. Ware, Ltd., Feltham, staged a fine collection of hardy plants in the annexe. *Irises* were well developed; *Cypripedium spectabile* was nicely flowered; *Primula japonica* hybrids were in good variety; the pretty little *Androsace Chumbyi* var. *Brilliant* was most striking; while *Dodecatheon pauciflorum* was well flowered. A really good exhibit.

Mr. H. J. Elwes, Colesborne, Cheltenham, sent a very interesting collection of cross-bred *Fritillarias*, also some *Crinums* and a collection of *Irises*.

Messrs. T. Rochford and Sons, Broxbourne, sent a grand group of climbing *Roses* trained as semi-balloons, about 6ft to 7ft high. Each specimen was a mass of flowers. (Silver Flora medal.)

A small table of foliage plants came from Messrs. W. Bull and Sons, Chelsea, which were chiefly of a decorative character. The *Dracenas* were of good colour, and the *Aralias* well grown.

The Guildford Hardy Plant Nursery made a good display of alpine, and a beautiful table of *Carnations* came from Mr. Burnett, St. Margaret's Vineries, Guernsey. The flowers were perhaps the largest Mr. Burnett has ever staged, while the colour left little to be desired. (Silver Flora medal.)

Pansies, *Violas*, and cactus *Dahlias* came from Messrs. Carter, Page and Co., London Wall. The *Violas* were in excellent form, some of the best bedding varieties being staged. A capital strain of *Pansies* was also in evidence, while the collection of cactus *Dahlias* reminded one more of autumn than spring. (Silver Banksian medal.)

From Messrs. W. Cutbush and Son, Highgate, came a varied display. The *Carnations* naturally attracted much attention, the flowers being large and bright. *Roses*, *Spiraeas*, and *Azaleas* were also excellent. (Silver Flora medal.)

Mr. R. Gill, Tremough, Penryn, staged a fine collection of *Rhododendrons*, also some well-flowered branches of *Embothrium coccineum*. The best *Rhododendrons* were *Falconeri*, *Aucklandi*, and *Beauty* of Tremough. (Silver Banksian medal.)

Mr. G. Reuthe, Keston, Kent, displayed alpine, also a collection of *Rhododendrons*, such as *Wallichii*, *Thomsoni*, *Kewense*, and *Aucklandi*. (Bronze Banksian medal.) The Misses Kipping, Hutton, Essex, made a small exhibit of alpine. The chief features were *Veronica rupestris*, *Daisy "Alice"*, *Primulas* and *Auriculas*.

Mr. L. R. Russell, Richmond, sent a fine group of flowering shrubs. The standard *Lilacs Marie Lemoine* were excellent, as were also the standard *Weigelas*, and *Azaleas* of the mollis and rustica types. (Silver Banksian medal.)

Polyanthuses came from Mr. S. Mortimer, Farnham, and made a splendid bank. The flowers were large, and, grouped in blocks of colour, they presented a very fine appearance.

Certificates and Awards of Merit.

AURICULAS.—The following varieties, each from Mr. James Douglas, received Awards of Merit.

Coronet (green-edge).—A fine, bold, solid, and smooth flower, with a heavy green edge.

May Day (self).—A yellow self of a distinct buff yellow.

Mildred Joy (alpine).—Flowers large, round, well defined, smooth; the body colour magenta-purple, the edge greyish-mauve.

Angracum Germanyanum (Sir Trevor Lawrence, Bart.).—A dwarf plant, 5in high, with green oblong leaves, set distichously. The flowers are small, with large white dorsal sepal, the other segment running out into long, thin ribbons. A.M.

Asparagus felicitus (Sir T. Lawrence).—This is of the Sprengeri section, but is quite distinct and of stiffish habit, the branches and leaves coming off at right angles to the stem. A.M.

Aubrietia, Paul's Pink (Paul and Son, Cheshunt).—In colour and style this seems to fall between *Moerheimi* and *Leichtlini*. It is a mauve pink. A.M.

Brasso-cattleya Heatonensis (Major Holford).—A huge magnificent flower, one of the loveliest and grandest ever seen. The *Digbyana* lip is very large, pale rose with soft yellow throat, the petals and sepals also of soft creamy and pink shades. F.C.C.

Cattleya Mossii Goosensiana (Sir T. Lawrence).—Large and heavy, with rich purple lip, white fringed, orange in the throat, and large rosy petals. F.C.C.

Epidendrum leucochilum (Sir T. Lawrence).—The thin, narrow segments, 2ins long, are yellow, and the protruding lip is white. B.C.

Eria amica (Sir T. Lawrence).—Tiny little greenish flowers, the minute lip yellowish, and red in the centre; on racemes. B.C.

Narcissus Snow-shoe (Walter T. Ware and Co., Bath).—A splendid poeticus variety or cross-bred variety, the thick white "petals" lying well over each other and being nicely waved. A bold, good flower. A.M.

Odontoglossum apterum Mossii (J. L. Moss, Esq., Wintershill Hall, Bishops Waltham).—Flower of largest size, with thick, white, waxy petals and sepals, marked with golden yellow at the base of the lip. The flowers were basin shaped, and borne on a short stalk, the bulb being small. A.M.

Odontoglossum crispum Leonard Perfect (Norman C. Cookson, Esq.).—This is probably the largest crispum ever seen. The flowers would be 4in each way. The centre of each segment is filled with a shield-shaped bronzy-red coloured mass, and the lip has a golden crest. The raceme had fourteen flowers. F.C.C.

Odontoglossum illustre Theodora (de Barri Crawshaw, Esq.).—Parentage: *O. Vuylstekei* and *O. ardentissimum*. A medium-sized flower of good form, mainly coloured purplish-heliotrope with white edge, and handsome brown lip. A.M.

Odontoglossum Ossulstonei, Giebelands variety (J. Gurney Fowler, Esq.).—Parentage: *O. crispum Harryanum* × *O. Pescatorei Charlesworthi*. Flowers large but somewhat lax, coloured lake or plum over white, and with white edge. A.M.

Royal Gardeners' Orphan Fund.

RECORD FESTIVAL.

The coming-of-age festival, under the chairmanship of the president, his Grace the Duke of Bedford, K.G., was held in the Victoria Room of the Hotel Cecil, London, and the company, as usual, was large and representative. The tables were also, as heretofore, beautifully florally decorated, the nurserymen around the Metropolis having liberally contributed the blooms. Irises, Carnations, Roses, Spiræas, Anthuriums, and orchids were utilised.

After the Royal and loyal toasts, the chairman gave the toast of the Royal Gardeners' Orphan Fund, saying that from that night they, as subscribers to this Fund, came of manhood's age; and his Grace went on to speak of the shadow which hangs over those who, in the ranks of gardening, are fathers. He alluded to the partiality of employers for gardeners "without encumbrances"; and, no doubt, though there was something to be said for this private aspect of the matter, it had also a serious national aspect. He had read only that night that the birth rate, just announced, was the lowest on record in these islands.

The Fund was now maintaining and educating 116 children, but though this was matter for satisfaction, they might do more had they the means. The income is secured from interest on invested funds held by the committee, and from the annual subscriptions. The chairman thought there was no charity more deserving of the public support than theirs (or "ours," as he, as president, called it). There is no pursuit which gives more charm or brightness to country life, and none which more beautifies the life in towns. Gardening appeals to everything that is most wholesome and charming. He therefore most heartily appealed to them to see to it that the institution was always enabled to discharge its responsibilities.

The reply was in the hands of Mr. Edward Sherwood, second son of that great friend of the gardeners' orphans, Mr. N. N. Sherwood. Mr. Edward is also treasurer of the Fund. He thought it could not have been more happily arranged than that His Grace should have been in the chair on this auspicious occasion. He hoped that the present gathering would also be announced as a record one, which indeed it was, as Mr. B. Wynne, the secretary, afterwards informed the company, there being 176 present. Mr. Sherwood alluded to his own efforts to make the Fund known to friends in the country, where he had found that the smaller horticulturists knew very little about its aims and objects. It was imperative that gardeners everywhere should know that though the business was administered from London, as a convenient centre, yet its assistance was open to gardeners' orphans in every part of the British Islands. The speaker was exceedingly grateful to everyone who had supported himself and the cause on this great occasion. The expenditure kept pace with the income; for the sum of £100 more was spent last year than in any previous year. In order to fittingly recognise, celebrate, and mark the passing of the coming-of-age of the Fund, Mr. Sherwood, amid cheers, announced that his father, his elder brother, and himself had resolved to establish a new section of the Fund, in honour of his father's little granddaughter, Maybud Campbell, whose name this new fund (of £300) would bear.

Excellent vocal and banjo music was interspersed between the toasts, and the company manifestly enjoyed itself.

The next speaker was the Mayor of the City of Westminster,

Mr. John W. Dennis, J.P., who is an ornament to the industry of horticulture, his firm, as large Potato merchants, being well known in London and elsewhere. The toast which he proposed was the old one, "Gardeners and Gardening," and the Mayor of one of the wealthiest and most aristocratic of cities, offered some excellent hints to his hearers. Gardeners nowadays must be more than ever abreast of the times, and mere rule-of-thumb cannot longer successfully compete with good practice combined with the application of scientific principles. The man who could make two Cucumbers or two Potatoes grow in the space where only one grew before, was going to win. Knowledge of science, knowledge of statistics, knowledge of the best markets—of the world's markets—was now imperative if practitioners hoped to reap due and full remuneration for their labours.

Mr. Dennis concluded by saying that perhaps he ought not to have spoken exclusively of gardening as an industry. It was an art, and the gardener an artist; he might name gardening as a profession. "When Adam delved, and Eve span, who was then the gentleman?" He thought there could be no manner of doubt that Adam was!

Dr. J. B. Farmer, D.Sc., F.R.S., successor to the late Dr. Masters as editor of "The Gardeners' Chronicle," ably responded, and put forward a powerful plea for Government recognition of horticulture, similarly to Belgium. From a national point of view it behoved horticulturists to try to get their calling recognised at its true importance. As an industry it provides labour for the largest amount of people upon the land. Its need of political recognition is a burning question. This is an age of differentiation, and horticulture is distinct from agriculture. Dr. Farmer also pleaded for official recognition of horticulture at the universities; it was without any doubt a fitting subject. Such recognition would stamp gardening as one of the liberal professions, and when one considers what a comprehensive knowledge of horticulture and the sciences that bear upon it mean, no one could say that the subject was not far-reaching.

A most apt and admirable speech fell from the lips of Mr. W. Poupart in proposing a toast to "The Visitors." The Fund "started" in 1887, and at once began to grow and fruit. Fruiting did not harm it, as fruiting harms some subjects with which they were acquainted with; but it steadily developed. He knew that the visitors all desired to have a hand in tending and helping its growth. There was a plant that required nutriment for its cultivation; "it could do with a lot of nutriment" (laughter). And all we provide for it goes to fruit, not to foliage! It was, in gardening parlance, "a specially good thing," and they rejoiced together over it, and were individually and collectively proud of it.

Quite as interesting was Mr. Arnold White's reply on behalf of the visitors. They were there representing the interests of the dead gardener's child. There were two points in the matter before them; one was the duty of the employer to the gardener; and the second was the duty of the gardener to the employer. Looking on as an outsider, he often wondered why gardeners do not obtain a higher social recognition. The butler, head nurse, coachman, keeper, or groom were paid no higher than their deserts, but gardening demanded vastly more knowledge than these callings. The time was come for a step forward; of that there was no doubt. Gardeners ought to endeavour to raise their status by themselves, and ought, like engineers and the higher artisans, to lay claim to the true dignity of their office. They would do far more that way than by the venue of charities. (Applause.) But Mr. White reminded gardeners that their duty to their employers ought never to be overlooked or neglected. It was demanded of them that they possess a higher knowledge than heretofore. He had been told, whether truly or not, that not one gardener in ten, for example, followed up and understood the experiments at Ridgmont. That excellent station, as they knew, was maintained by their noble chairman. He thought it possible that the Government might well be called upon to carry on the experiments. Be that as it may, there were the research results, and he trusted they would be studied and applied.

The subscription list was read by Mr. Wynne, the secretary, who remarked that twelve months ago he had had to announce a record both in attendance and in the amount subscribed. This year that record had been far exceeded, and the total subscription was £1,385, exclusive of the £300 from Messrs. Sherwood. Some of the items were: His Grace the Duke of Bedford, £250; Leonard Sutton, £100; George H. Cuthbert, £63 10s.; George Reynolds, £60 10s.; J. F. McLeod, £25 (including £20 from Messrs. Dobbie and Co.); R. B. Leech, £22 12s.; Lord Mountstephen, £20; David W. Thomson, £14 18s. 6d.; R. Hooper Pearson, 14 guineas; Whitpain Nutting, 14 guineas; T. W. Sanders, 11 guineas; W. Allen, James Veitch and Sons, and Harry J. Veitch, each 10 guineas; W. P. Thomson, £9 8s.; Thames Bank Iron Co., £10; James Douglas and J. Witty, each 6 guineas; Cutbush and Sons, J. W. Dennis, Alfred Watkins, S. Segar, Charles Dixon, and Geo. Bunyard, each 5 guineas. The Covent Garden friends sub-

scribed £260 13s. 6d. This year a division was made into fruit, flower, and vegetable departments. Mr. Ingamells, Mr. Parsons, and Mr. Ponpart were respectively in charge. As the result of the Shilling Fund, started by Mr. H. J. Clayton, a sum of £204 had already been received. A toast to the chairman, proposed, in the best-worded speech we have ever heard him make, by Mr. Henry B. May, chairman of committee, was received with three cheers, and His Grace, who was an ideal chairman, and a forceful and finished speaker, responded. The proceedings terminated towards 11 o'clock.

The Scottish National Exhibition.

HORTICULTURAL EXHIBITS.

This interesting and attractive exhibition was declared open on Friday, the 1st of May, by H.R.H. Prince Arthur of

an educative and beautiful exhibit. We then come to a very handsome exhibit by Messrs. Dickson and Co., of the Royal Craigmillar Nurseries. A series of beds have been planted with beautiful Rhododendrons in full bloom, tastefully intermixed with gold and silver variegated Euonymuses and other ornamental subjects. Further on, Mr. D. W. Thomson, of Windlestrawlee Nurseries, has quite eclipsed himself with the attractiveness of his exhibit: Rhododendrons in fine bloom, and Ghent Azaleas, standards and dwarfs in great profusion, and a large number of handsome "Baby" and climbing Rambler Roses. This makes a very notable exhibit. Messrs. Thos. Methven and Sons confine themselves to a very massive exhibit of specimen Hollies—beautiful plants in all the choicest sorts. Mr. John Downie plants quite a garden with attractive shrubs, greatly varied, and lit up by handsome plants of Japanese Maples. Messrs. Jas. Dickson and Sons, Inverleith Nurseries,



Spring bedding in the Scottish Capital. (See page 458.)

Connaught, in the presence of a large and distinguished assemblage. It now promises to be not only attractive to visitors, but highly successful to the promoters. The recent unlooked for spell of wintry weather prevented the grounds being prepared in proper condition before the opening day, but with improved weather conditions everything is now ship-shape, and the grounds will soon be a source of pleasure to visitors. Along the main avenue from the principal or Royal entrance a number of beds has been laid out, and are at present planted with hybrid Rhododendrons, which give promise of profuse bloom, and which will be followed as the season advances with summer flowers.

A large patch of ground has been allocated to the nurserymen of the city, who have, in friendly rivalry, laid out their various patches in most attractive fashion, and already there is quite a blaze of flowers. On passing along the avenue, the first object to meet the eye of the flower-loving visitor is a handsome rock garden, beautifully constructed and laid out with suitable subjects by Messrs. Backhouse and Sons, of York. With further development as the season advances this will be

have a similar patch, neatly planted with a very varied collection of young shrubs.

Messrs. Dobbie and Co., Rothesay, have planted a flower garden with a fine collection of hardy Primroses and Polyantheses, and a complete collection of bedding Violas, which will be most attractive by and by. Messrs. Dobbie have also an exhibit in the Industrial Hall of cut blooms of Primulas, Polyantheses, Auriculas, and Violas and fancy Pansies, in all the best sorts. Messrs. James Grieve and Sons, Redbraes Nurseries, have planted a very full collection of bedding Violas, many of them varieties of Redbraes origin which will soon make a good show.

Round the Canadian Temple, Mr. David King, of the Osborne Nurseries, has added much to the beauty of the building by planting with much artistic taste a varied and attractive collection of plants—palms, Rhododendrons, conifers, Marguerites, Violas, &c. Among attractive exhibits few things are of more interest than the splendid display made by the Royal Arboricultural Society of Scotland, of which we may give some details in a future number.—T. M. E.

Dutch Bulb Growers.

The following awards were given by the Narcissus and Mixed Bulbs Committees at the meeting of April 22:—First class certificates to Narcissus General Baden Powell, a deep yellow trumpet Daffodil; Narcissus Sulphur Beauty, with white perianth and clear sulphur trumpet; Narcissus bicolor Dick, with white perianth and yellow trumpet; Astilbe Queen Alexandra and Astilbe Peach Blossom, both of a handsome rosy-pink colour, good forcing, free-flowering varieties. Awards of merit were given to Narcissus Y. H. Krelage, a very early free-flowering trumpet Daffodil, with light yellow perianth and pure yellow trumpet. Narcissus Mr. van Noort, a cross between Emperor and Golden Spur, a large flower, with broad yellow trumpet and light yellow perianth. Narcissus Sir Henry Campbell-Bannerman, with deep yellow trumpet and yellow perianth, with rather pointed petals. Narcissus bicolor Giant, with fine broad trumpet and cream white perianth; a large flowering strong growing variety. Narcissus Miss Ellen Terry, with clear yellow trumpet and white perianth. Narcissus Snow Queen, a white trumpet Daffodil, with curling petals. Narcissus Tom, with dark yellow trumpet and yellow perianth, a large flowering variety. Besides, some cultural awards and also a gold medal were awarded to various exhibits.

Obituary.

Mr. B. H. Thwaite.

The death was announced on Saturday last, at his residence, Egham, Surrey, at the age of fifty-three years, of Mr. Benjamin Howarth Thwaite, who recently invented a system for the cultivation of plants by electricity. Mr. Thwaite was a partner in the firm of Thwaite and Thorpe, engineers, Westminster. His health broke down some months ago, when the electrical experiments at the Royal Botanic Society's Garden, Regent's Park, were also stopped. We do not know if they have been continued, but in any case the sequence of the records was interrupted by his illness.

Mr. Bernard Cowan.

We deeply regret to have to announce the death of an old friend and contributor, in the person of Mr. Bernard Cowan, who died on Tuesday, May 5, at South Shields, in his sixtieth year. Mr. Cowan had been superintendent of the local cemeteries for thirty years. In his earlier years he was gardener under the Charltons, of Hesleyside, and he became head gardener to Sir William Hutt, of Gibside, and afterwards to Sir Harry Clavering, of Axwell Park. About thirty years ago, out of 120 applicants, he was chosen as superintendent of the Westoe Cemetery, under the South Shields Burial Board, whose duties were subsequently taken over by the Corporation, and under his care the burial ground became one of the most beautiful places in the borough. The new cemetery at Harton was laid out under his supervision, and here also he achieved an amount of success which excited general admiration. At the present time the grounds are ablaze with many coloured flowers, the picturesque effect being greatly heightened by the artistic arrangements of trees, rocks and shrubs. His success in his profession secured for him the Fellowship of the Royal Horticultural Society shortly after he went to South Shields, and at one time he conducted a series of botany classes under the Durham County Council. As vice-president of the English Arboricultural Society, and joint secretary of the South Shields Chrysanthemum Society—of which he was one of the founders—he gained a more than local reputation. Mr. Cowan, who leaves a widow, appeared to be in excellent health until last Thursday; when he had an unexpected paralytic seizure. There was an improvement in his condition on Monday, but a change for the worse took place during the night.

Spring Bedding.

We have it on the authority of the present president of the Scottish Horticultural Association that the display of Spring bedding in the terrace garden at Princes Street, Edinburgh, is one of the most magnificent of any in Europe. The massed beds of all sorts of bulbs—Hyacinths, Tulips, Narcissi, with Wallflowers, Aubrietias, Arabis, &c., to assist—make a really imposing exhibition. We ourselves saw the golden banks of Daffodils in the grass in these gardens at Easter this year, but alas! they would be bent and spoiled shortly afterwards by the snow. We are indebted to Mr. David W. Thomson, nurseryman, Edinburgh, for the illustration. The statue in the foreground is that of Livingstone, with the Scott monument behind.

Young Gardeners' Domain.

* * The prize is awarded to Mr. R. Habgood, The Gardens, Beech Hurst, Haywards Heath, Sussex, for his notes hereunder. Honourable mention is accorded to "H. P." Letters ought to be confined to between 500 and 600 words, and should be writtten only on one side of the paper (foolscap size, if possible).

Aquilegias in Pots.

These plants are now in full beauty in a cool greenhouse in these gardens; and as they are seldom seen in pots, perhaps a few remarks on the method of cultivation may prove of use and interest to readers of the "Domain." The seed should be sown in January or February, in pans or boxes of light, sandy soil, and be placed in a warm house to germinate. When large enough to handle they must be pricked off into boxes to avoid overcrowding and consequent weakness. Afford them a light position in an intermediate temperature, and keep them growing as fast as possible without becoming drawn; the object to aim at being strong plants for the open garden by the end of May after gradual hardening off. It will be found best to grow them in a bed by themselves, choosing a sunny site that has been well manured and dug previously, and allowing each plant a square foot of ground, as by this means they are not shaded by other subjects, and the crowns become properly ripened. This is an essential point to be borne in mind. The hoe should be frequently used throughout the season, and copious waterings given during dry periods. By the end of October the plants will be fit for lifting. Select the strongest and most prominent crowns, as only from these can good results be expected. The weaker ones may be replanted to form an extra strong batch next season. Those selected for potting should have all decaying matter removed from about the crowns, or they are liable to rot, and suitably sized pots ought to be used, so that the roots are not unduly crushed. It is not advisable to use a rich compost for potting, as the roots are entirely dormant, and remain so for several weeks. The plants should be placed in a cold frame and watered only when quite dry. About February they may be brought into a cool house to commence growth, but at no time should hard forcing be attempted, or disappointment will result, though a little extra warmth may be given after the spikes are well developed. Manure water should be frequently given when the spikes appear, and the plants must not want for water after the foliage begins to develop. When they pass out of flower place them in a frame to harden off, and they will be found useful for planting in the herbaceous border, or they may again be planted in beds for lifting after a season's rest if extra large clumps are desired. The long spurred hybrids are the best for this mode of culture, and few flowers excel them in grace and beauty for general decorative purposes.—R. H.

Wild Flowers.

Once again Spring is here, bringing in its train a wealth of floral treasures. I know of no more enjoyable way of spending a Saturday afternoon than by a ramble through the fields and lanes with a friend in search of specimen wild plants and flowers. Here, in the West of England, the old stone walls which divide the fields are indeed the happy hunting grounds of the wild flower enthusiast. On these stone walls such treasures as the Stonewort (Sedum acre), the Penny-cress (Cotyledon umbilicus), the Ivy-leaved Toad-flax (Linaria cymbalaria), and the Hart's-tongue fern (Scolopendrium vulgare) are found. I have seen these walls covered with the Stonewort, which, when in full flower, gives the whole wall the appearance of a golden ribbon when seen from a little distance. It is a beautiful sight, not easily forgotten. The wall Penny-cress is a quaint and very interesting plant. The thick, peltate leaves, though small, compel one's attention, and its long spike of pendulous flowers is most conspicuous.

In the woods and hedgerows the Primrose (*Primula vulgaris*) is now carpeting the ground, to be followed by the Bluebells and Wood Anemones (*Anemone nemorosa*), the Bedstraw (*Galium verum*) with its panicles of tiny yellow flowers, and the beautiful Campions, diurna and vespertina, and hosts of other beautiful flowers, including our own native Orchis.

By the streams the Marsh Marigold (*Caltha palustris*) flourishes, its beautiful bright golden flowers brightening the whole landscape. I have seen the marshy banks of streams covered with them, and once seen it is never forgotten. With the sun shining on them the eyes are dazzled. In wet places the Water Violet also adds to the general beauty; the delicate colour and grace of *Hottonia palustris* is unsurpassed, and when seen growing naturally, in masses, it is magnificent, and I think in delicacy of colour unequalled.

It is surprising to find how little our native flora is appreciated. Of course, the flowers lose in comparison with cultivated species in the matter of size, but in colour they are

unsurpassed, and in many cases have a far more graceful appearance, and their structure is, of course, quite as complex. The study of wild flowers is a most delightful hobby, and nothing to my mind can give greater pleasure, particularly if botany is added. Many wild flowers are also interesting because of the quaint legends associated with them; the Blue-bell is an example of this. Yet with all their beauty and grace it is not often I meet with a young gardener who knows the names of them, and only once have I met one with a collection of wild flowers. I remember once seeing a cabinet of dried grasses, of which the owner (then my foreman) was justly proud. I expressed my admiration of them, and was then asked why I, being so fond of wild flowers, did not make a collection. I resolved to do so, and many a valuable hint I received on the method of pressing and drying them. I have found the trouble nothing as compared with the pleasure enjoyed. I would like to see more young men adopt this hobby.—H. P., Malmesbury.

Bothy Life.

I quite expected that the brief article which was written by me on the above subject in a recent issue would cause a little controversy. But I rather think that "A Lover of Work," or rather, "One Who Loves His Work," has taken an extreme view of my article. When I said that the duty man was generally the sole occupant of the bothy after about eight o'clock, I did not wish to infer that the other bothyites should stop in to sympathise with him (as he seems to take it), or that one should always stay in the bothy to study. I certainly believe that to listen to a lecture on botany, or any other useful subject, from a learned and experienced lecturer, is time profitably spent, more so than with the duty man, who is, perhaps, no better learned than oneself. A note of uncertainty (if I may say so) seems to ring in "One Who Loves His Work's" article. Often the bicycle is the means of conveying the young gardener to any place except botanic meetings and the like. I am sorry to have to speak so strong, but one must speak as one finds. But I will conclude, as the Editor will not want to have the "Y.G.D." filled with argumentative articles. I will just add what I heard a fellow-bothyite say on being in his first bothy. He said, "I thought when I got into a bothy there would be more studying (horticulturally) than when I was at home, but I find there is instead far less."—F. CAVE, Holker Gardens, Cark-in-Cartmel.

The Distribution of Moisture in Houses.

There are numerous essentials to the successful cultivation of individual species of plants, and one common to all is an appropriate atmosphere and moisture applied according to requirements. My few remarks will be limited to the latter. During the winter months a limited supply of moisture is required, on account of the natural air outside being humid; but now the brighter days are upon us, more moisture is necessary. On the way in which the moisture is distributed depends to a great extent whether pests are to thrive. Syringing should be effected with regularity. Red spider, thrips, &c., will not thrive on plants that are thoroughly syringed regularly. If the under parts of the leaves or the tops of the plants do not benefit from the syringe, the insects peculiar to the plants will soon make settlements, and multiply their number several times over. As some plants feed as much from the atmosphere as from the compost, it is important that the syringing and damping should be effected equally all over the house in order to obtain a uniformity. Where insect life cannot be exterminated with the syringe, a fumigating is, of course, an essential. Nothing will, however, beat the free use of the syringe to keep under such pests as thrips and red spider.—W. S., Kent.

Head Gardeners.

From time to time, in perusing gardening periodicals, one is struck with advice so often given to young gardeners about their conduct and the opportunities of advancing in their profession. But underlying it all, one thinks of the manner of life of some of their superiors. Knocking about bothies opens one's eyes to the character of some men, and the influence it has on the members of the "bothy tribe." Some head men hold a very high estimation of themselves, but it would be profit if they would pause a few moments and think if their example in daily life is commendable to those under them. How true the old adage is, "If you want to know me, come and live with me," and how disappointing some men are. Among one's superiors there is the gardener who, one would imagine from his experience, knew all about bothies, but yet treats the bothy men as if they were white slaves. All he seems to care for is to get all the work he can out of them in a given time; doesn't matter a jot whether they were comfortable or not. He may be held in very high esteem in the arena of his gardening friends, but what about the bothy chaps? What do they think of him?

Then there is the man who tries to get every hour of over-

time he can. What about him? Of course, he is the man who always had to do it when he was a boy, and so forth. Then when a chap wants a day off, he looks at the assistant as if he had asked a rise of wages, and gives him leave, but with a very bad grace. There is, again, the exhibitor. In a good many cases there are shady tricks done in "showing."—S.

Glad Springtime.

Spring is here! To-day I heard the cuckoo, and the first swallow has been seen. That little migrant, the chaff-chaff, has been with us nearly a month, and also the reed warbler. The thrushes are busy from morning till night, and although the weather has been so unfavourable, some youngsters are already out of the nest. The flowers of the Colt's-foot are fast fading away, and the beautifully shaped leaves are daily growing larger. Amongst the grass may be seen the small black heads of the cuckoo grass (*Luzula campestris*), which belongs to the Juncaceae. Burns's "wee, modest, crimson-tipped flower," the Daisy, is to be seen quite abundantly. It seemed to have been awaiting the greeting of a few hours' sunshine. Narcissi are everywhere: the Horsefieldis have suffered most from the inclemency of the weather, but the silvery Leedsis have escaped. But, after all, for boldness and intensity of colour the palm must be awarded to the old double Daffodil. Among the shrubs and in the woodlands it is so much more in keeping than any other. The Larch is fast assuming the dress we all are so pleased to see. It is one of the prettiest of greens that Nature has to bestow. The scale leaves are fast falling from the bursting buds of the Horse Chestnuts, which will soon be in flower. *Prunus Pissardi* should have been in blossom a fortnight ago, but it has only opened recently, and I notice that the flowers are only on the sheltered side of the trees. Last year the Cherry blossom was over on this date; but so far not a single flower has opened. The Crab trees are becoming a denser green every day, and they should be a wealth of colour soon.—P. W. A., April 29.

Dahlias

The Dahlia is a native of Mexico, and was first introduced into Europe as far back as 1789. At that time it was the people's ambition to get the double ones; long afterwards the singles came into prominence, and latterly the cactus type has claimed the first place. Dahlias are propagated by means of cuttings, provided you have convenience. Seeds may also be sown, and division of the roots. The latter is not much practised, only in the case of cottagers. Presuming the tubers have been stored away all winter in a cool dry place, beyond the reach of frost, they should be put in boxes about the end of January. Place the roots in leaf soil, or soil of any light nature, but do not cover the crowns, as the cuttings are much easier to get at when bare. When boxed place them in front of theinery or propagating pit, or even a hotbed in a frame, and then give an occasional syringing with tepid water. In a fortnight strong shoots will be produced, and when these are 4in or 5in long cut them off and throw them away, as the first shoots are usually hollow and consequently no good. When the second batch of shoots appear, and they are 3in or 4in long, take them off with a sharp knife, at the same time being careful not to injure the cluster of growths at the base. Do not take the thicker cuttings in preference to the thinner ones, as they are often hollow. Cuttings about the thickness of a lead-pencil are the best, and root much better and quicker. Prepare some of the smallest thumb pots and fill with light sandy soil, covering with sharp sand on the surface. Sever the cuttings just under a joint, and then with a dibble insert them in the centre of the pot, taking care that the base of the cutting rests on the soil, and make them firm, especially at the base. Write the name of each variety on a label as they are taken from the old plant. As soon as they are inserted give them a good watering and place in a frame with a bottom heat of about 70deg, and shade for a few days from the sun, and in the course of three weeks or a month they will be rooted, providing all has gone well. Gradually inure them to full light and air, and then they will be ready for potting. Cuttings inserted singly in small pots, when rooted, will repot into 4in and 4½in pots straight away, and it also saves that splitting and dividing of the roots.

The ground selected for growing Dahlias should, in the autumn or early spring, be given a good coating of manure and be dug about 2ft deep. The latter end of May and the beginning of June is the best time for planting. Make the plants firm, and then stake them to prevent the wind from rocking them. Mulch with manure, as this keeps them moist and feeds them when it rains, or when they are watered. If the weather is dry sprinkle them every evening with clear water. Dust round the plants with fallen lime, but do not allow it to touch them. This keeps off slugs. If you can catch them so much the better; the evening is the best time to look for these. Earwigs are another troublesome pest, and a pot with a little hay or moss at the top of the stake is an excellent trap. Examine them every morning.—F. H., Bolton.



Hardy Fruit Garden.

FRUIT PROSPECTS.—Since my last notes we have experienced some really remarkable weather, even for our variable climate. We had found one or two sharp frosts with very cold trying winds not at all helpful towards an optimistic frame of mind, but snow, rain, and frost have helped to strengthen what was previously becoming a pessimistic attitude. It is too early to speak definitely as to damage done. We find Gooseberries have suffered, Black Currants here and there are injured, but not seriously. The damage to Plum blossom must be with some sorts rather heavy. Many Pear buds were blackened before opening; in fact, we expect this crop to be very light. Cherries upon examination prove to be more or less damaged, and though Strawberries with us have escaped injury, the outlook is far from being as promising as when we last penned these notes. Whatever damage has been inflicted upon growers, the routine work must be continued if possible, though with heavy rains day after day, it is difficult to see how land can be kept clean or other work efficiently carried out.

MORELLO CHERRIES.—It is but seldom these can be found to succeed on the spur system of pruning and training. We would therefore recommend rather more attention in the matter of the regulation of the shoots than is usually accorded this fruit when grown on walls. Some method of disbudging or removing superfluous shoots may be carried out much in the same way as advised for Peaches, though the thinning need not be as severe. Enough young shoots should always be allowed to remain to cover available wall space and to ensure sufficient young wood to provide a crop of Cherries next year.

MULCHING AND FEEDING.—At present there appears very small need of the first named work of mulching, but after dealing with light soil a number of years we have come to the conclusion that with such a medium it is by far the better plan to mulch, whatever the weather may happen to be at or about this season. A mulching will help to retain the moisture in the case of a sudden change to a hot dry term; and though the covering may not altogether prevent the necessity of watering it by its retaining quality, it will most probably be found to reduce the number of waterings required very considerably. In the matter of feeding, the mulching itself will accomplish much, provided it is composed of rich farmyard manure, but additional aid may be afforded weakly trees in the shape of liquid manure, and in such a wet soaking time as this, it will be found excellent for the purpose.

PEACHES.—There should be little trouble from insects this season so far, but let the weather be what it may, we have recently seen some promising aphids, and they may usually be expected to find their way to the points of the young shoots. The pest can be best stopped by timely measures as soon as discovered. Dusting with tobacco powder or spraying with Abol or tobacco water will check the attacks and cleanse the trees if persisted in.—J. W., Evesham.

Fruit Culture Under Glass.

EARLY PEACHES.—Those who have a house of the earliest varieties will now have the fruits approaching the last stage, and every encouragement should be given the fruits in the way of moisture and exposure to get the best possible colour. Amsden June and Waterloo so rapidly mature when they have passed their final stages, that these varieties have a great advantage over other kinds, and they colour grandly if the foliage is removed where at all thick. I have at times found these early American Peaches split badly at the stone. This shows a deficiency of lime in the soil, and can be remedied another season. The wood also requires to be kept perfectly clean, as when red spider gets hold of the trees the flavour is impaired, and this should be borne in mind before the fruits begin to soften, as at that date syringing must cease.

NECTARINES.—These are often grown in the same house, and they are a little later than the Peaches named. The introduction of the New Cardinal and Early Rivers give fruits much earlier than older kinds. They require much the same treatment as advised for Peaches, and like them they require full exposure to sunlight to get colour, and towards the finish leave some air on the house at night. Care should be taken before the ripening stage to see that the roots are thoroughly watered, and any cleansing done. Red spider may be removed by repeated syringing, and aphides can be destroyed by fumigation. All traces of the latter should be removed by syringing to clear the fruits of the vapour. Trees of both Peaches

and Nectarines that are laden with fruit at this stage should get a quick-acting fertiliser. In giving food of any kind, care should be taken that it is readily absorbed by the roots. Give it early in the day, and with ample ventilation, as it is well to keep the foliage as good as possible. I have, in dull weather, and with strong fertilisers employed, seen bad results from overfeeding.

FRUIT WHEN RIPE.—Here one would think advice scarcely necessary, but it is well to point out that flavour cannot be obtained in a hot, steamy house. A cooler condition will improve flavour. In a mixed house with fruits at different stages this is difficult, but it is well to lower the temperature by affording more ventilation. Fruits should never be left on the trees until they are too ripe, as the flavour is not nearly so good as when gathered at the point of ripening, and placed in the fruit room for a short time. This done, they will keep good a much longer period. In old houses I have seen woodlice attack the fruit badly. These must be trapped by placing some Carrot or Beetroot for them; and ants can be caught by a sweet mixture at the base of the trees.

LATER HOUSES.—Here there will be much work in the way of thinning out shoots not required, stopping others, and also thinning the fruits. These are often in clusters, and the worst placed must now make room for the others. In some houses, where aphides are persistent, every means should be taken to get rid of the pest at an early date, as, with a greater amount of sunshine, these increase at a great pace if left a short time, and if left they check the shoots. The fruits then cease to swell freely, and all the attention possible afterwards will not make up for lost time. Latest houses that provide fruit till the outdoor fruits are obtainable will now require constant attention in the way of disbudging, care being taken to furnish the trees with new wood at regular intervals so as to avoid crowding. These trees not being forced hard should give splendid crops, and are frequently very strong, so that more care is required in training and cropping. The borders should have a thorough watering as soon as the fruits are set, and the trees can be freely ventilated.—G. W., Brentford.

The Plant Houses.

PRIMULAS.—The principal sowing of the Chinese Primrose, *P. sinensis*, may now be made. Sow the seeds in well drained pans, filled with light sandy soil. Cover the seeds very thinly with fine soil, and place in a warm moist house. Lay glass over the pans till germination commences, covering also with paper. The number of sorts is so great that it would be unwise to mention names here. All three sections are desirable subjects to cultivate. The stellata or star types for their light and graceful habit; the giant types for their large flowers; and the ordinary *sinensis* varieties for their general usefulness.

CLIMBING PLANTS.—Most of these are now growing freely, requiring thinning, tying, and stopping, or the growths will be all entangled. Do not tie the shoots up too tight, rather let them hang down if there is space for them. They will show in this way to much greater advantage. Insect pests must be checked by fumigation, syringing, and sponging with insecticide. Plenty of water will be required by the strong growing climbers; applications of liquid manure should also be given.

RICHARDIA (CALLA) ELLIOTTIANA.—After these have flowered, encourage the plants to make growth in a warm house. A little fertiliser may with advantage be pricked in the surface soil. As the leaves turn yellow, water must be gradually withheld, placing them out in a frame to get thoroughly ripened later on.

GENERAL REMINDERS.—Insert a few cuttings of *Coleus thyrsoides* for an early batch, also cuttings of *Thyracanthus rutilans*. Prune *Boronia heterophylla* after flowering, also *Acacias*. Proceed with the potting of *Ericas*, *Epacris*, and other hard-wooded plants as they push into new growth after pruning. Prune and generally shape the *Gardenia* plants after flowering which it is intended to grow on another year. Remove a little of the surface soil and replace with new. Insert a few more cuttings. Give a little stimulant to *Gloxinias* showing the flower buds, keeping them as near the roof-glass as possible.—A. O., Kew, Surrey.

Trade and Miscellaneous Notes.

Clibrans' Bedding Plants.

Quite a large trade is developing in bedding plants. In any case, a batch of a particular plant may fail, and it is very convenient to be able simply to order so many plants from your nurseryman! Or the stock of a certain plant may be too limited; or one may have an afterthought about some bedding scheme; in these cases such lists as the one issued by Messrs. Clibrans, of Altrincham, are very useful. We fail to discover any reference to variegated Maize, however, which is a favourite plant of ours.

TO CORRESPONDENTS

All Correspondence relating to editorial matters should be directed to "THE EDITOR," 12, MITRE COURT CHAMBERS, FLEET STREET, LONDON, E.C. Persons sending manuscript or photographs, when not specially requested by the editor, and making no demand for remuneration, are presumed to solicit publication without payment. In order that no misunderstanding may arise, and in order to secure the return of their contributions, contributors should state the fact that they expect remuneration, and in all cases, even when contributing voluntarily, correspondents should enclose a stamped envelope if they expect their enclosure to be returned.

WATER MELON CULTURE (A Young Gardener).—The treatment of Water Melons does not differ materially from ordinary Melons, as they succeed admirably in heated frames; but the plants require rather more space with plentiful supplies of water. The fruit attains to a large size, some kinds having been grown to a weight of 40lb.

SEEDLING TACSONIA VAN-VOLXEMI (Idem).—They will flower in the second or third year if the plants are afforded liberal treatment, and the shoots trained rather thinly near the glass in a light airy house having a greenhouse temperature.

FERNS IN CASES (M.).—With good management ferns in Wardian cases make free and satisfactory growth. Instead of the plants diminishing in size we have frequently seen them become too large for the miniature structures. The condition of your plants is due to unsuitable soil or defective management of the atmosphere of the case; or it may be, the case is placed in an unsuitable position—too hot and exposed in summer, and too cold in winter. As you do not afford us any data whereon to found an opinion we are unable to suggest a remedy for the failure you have experienced.

VIOLETS IN FRAMES (Young Gardener).—The method which you have been instructed to adopt of "planting single runners of Violets in cold pits in October" is not the best for affording a good supply of blooms in winter. We have seen stout runners with good crowns inserted an inch or two apart in boxes of light soil kept moist in a warm light house afford blooms plentifully in a few weeks, but no such results could follow in a cold pit. Only failure could be expected by the plan you describe, but as you acted "under orders," obviously the fault does not rest with yourself. Rooted offsets should be planted in good soil in the open air in April, the runners suppressed, red spider subdued, and strong plants with bold crowns will be produced by autumn for establishing in pits or frames before winter for flowering during the dull months of the year, the supply largely depending on the weather when no heat from fermenting materials or otherwise is afforded. A hundred times more flowers will be produced by this method than by the one you have been instructed to carry out.

CARPET BEDS (H. E. B.).—In beds of this description robust growth is not required, but rather a dense, compact, even surface. To insure this plant thickly, leaving only 2in or 3in of space between the plants that are likely to spread and become interlaced. Of such your list only includes *Cerastium*, *Sedum acre elegans*, *Mentha Pulegium gibraltarium*, and the *Iresines*. *Echeverias* should have no side shoots, should be uniform in size, and if the soil is poor the plants must almost touch; if rich, a space of 2in may be left between them. Very poor soil is unsuitable, so is very rich soil; the first imparting a meagre appearance to the growth and a lack-lustre hue to the foliage; the other inducing rampant growth, also with a loss of brilliancy in the colour. *Oxalis rosea* is not a good carpet-bedder, neither being sufficiently durable nor manageable. Discard it therefore for *Iresines Lindenii* and *Herbstii*, both bearing pinching and pegging well. Of light grey-leaved plants *Cerastium* is an old favourite of proved merit. None of the plants you purpose buying should be planted out till the third week in May; and even then, if the weather becomes cold and wet, *Iresines* are apt to shed their foliage. It will be better, therefore, to defer buying for a fortnight, and so avoid all risk. We would suggest that you have spring flowers prepared for the beds by next autumn. They are comparatively, inexpensive, three or four shillings buying enough seed for a large garden. The beds will be sheets of bloom from April till June, and your summer plants may then follow them at once.

MUSHROOMS (J. R.).—The bed may be made up at once with a view to the production of Mushrooms during the summer and early autumn, or it may be made up in August so as to have Mushrooms in autumn.

BANISHING ANTS (A Young Gardener).—An application of fresh Peruvian guano will often drive ants away, and a mixture of paraffin and water syringed about their runs will effect the same purpose. They may also be trapped by placing pieces of raw meat in dishes where the ants abound, and when numbers of the insects are congregated on the meat pour hot water over them.

STEPHANOTIS FLORIBUNDA UNHEALTHY (A. B.).—The roots sent are quite insufficient to enable us to determine what insect is attacking them. You might, perhaps, check its increase by watering with paraffin at the rate of half an ounce of the oil to a gallon of water, thoroughly mixed with the aid of a syringe; but a surer mode of obtaining a healthy plant would be to grow it in soil obtained from another source, the soil you are now using being evidently unsafe for the plant in question.

CUCUMBER HOUSE (Old Subscriber).—It is not desirable to force *Spiræas*, *Roses*, &c., in a Cucumber house, and it is too hot for forcing *Seakale*, *Rhubarb*, &c., the produce being inferior to that secured by a more rational system. A suitable width for a lean-to is 10ft, and the height of the back wall may be about the same. The front wall may be taken up to a height of 3ft in front, lights being necessary, so that you will only require a glass roof and glass at the ends above the brickwork, which will lessen the expense considerably. In front of the house should be a bed 4ft 6in wide, and this should be furnished with two rows of 4in pipes for bottom heat, fixed at about 18in from the top of the bed so as to allow space for rubble, with which the pipes should be covered to a depth of 6in, and allow for a foot of soil. Four rows of 4in pipes will be required for top heat—two along the front and the others in the pathway next the bed. You will need a trellis 12in to 15in distance from the glass, and the upper part of the lights must be made to open the entire length of the house for ventilation.

NAMES OF PLANTS.—Correspondents whose queries are unanswered in the present issue are respectfully requested to consult the following number. (R. Henderson).—1. and 2, *Abies brachyphylla*; 3, *Sequoia sempervirens*; 4, *Abies amabilis*; 5, *Abies nobilis glauca*. (Bristol).—*Bryophyllum calycinum*.



The Problem of the Horse.

The horse in war or in peace. In peace we may imagine to get along without him, badly, we will allow; but in war he is as necessary, or more so, than the Commander-in-Chief.

Of course, it would be the better plan to turn swords into pruning hooks, but as that is not likely to be, it is well to make preparation while yet there is time.

We are not quite sure at what age a horse would be best able to endure the arduous march under trying circumstances, but as we know by experience that no sane man will ride a four-year-old, if he can get a five or six-year-old, to hounds, it is fair to suppose that a horse must be at least five before he can be counted upon as a desirable mount for an English soldier. Stamina and condition must be there. The chances are, first a sea voyage of more or less duration; fodder very different from the home supply, and perhaps not a great deal of it; rough stabling, if any; and more or less rough treatment generally.

We can buy many things at a short notice, but where are we to find the well-seasoned horse such as we need? He is not produced in a manufactory as the result of a few weeks' work. He has to be bred and reared and schooled.

We are at last waking up to the fact that we are sadly deficient, in fact, that we have let things slide so long, been so easy about the matter, that there is much back reckoning to be made good. Sir Walter Gilbey has always taken a great interest in anything appertaining to the horse, and he has not been backward with advice and good suggestions. He is not a young man now, and therefore his opinion should have some weight, and he is candid enough to admit the fact when he makes a mistake. Speaking of the question of horse breeding,

he says he used to consider that the industry was best left in the hands of private individuals, and to private enterprise, but he has been forced to the conclusion that this vital matter can be no longer safely left to private effort, but that something must be done by the State. Certainly so, for these efforts are for the protection of the State. We do not leave the building of warships to private enterprise; we do not expect our merchant princes to equip and maintain gunboats or cruisers. They may do it indirectly by the way of taxation, but our War Office is responsible for the safeguarding of our shores, and those who manage the Army must see that the Government continues to find a proper supply of horses.

Well, where are the horse breeding farmers gone? Retired from the trade because it no longer pays. There is no doubt of it that many a man would fain do as his father did before him—breed horses, and as they grew old enough school them himself, and get a bit of good sport out of them in the hunting field, just to teach them manners, before he sold them at a fair profit. But he cannot afford to do this. There are risks in breeding; risks, and serious ones, during every step of their career, and he cannot let his money lie idle so long. In farming the margin in everything is so small that no chances can be taken.

There is a certain amount of help given the breeder in the shape of thoroughbred sires at reduced fees. £5,000 is the exact sum expended in this form. But alas! it is as a drop in a bucket. It is good as far as it goes; but is sadly inadequate.

Sir Walter goes on to compare our meagre work with that done by France. Of course, France is in an exceptional situation. She has seen the horrors of war brought home to her very capital. In self-defence she must always stand "at attention"; but, nevertheless, we might take a lesson from her for our own good.

She spends £300,000 a year upon her studs and on the purchase of horses. In the last Budget, £53,000 was voted for the up-keep of the studs alone, and £753,208 represented the expenditure on remounts. There are in France twenty-two central studs, and some 3,400 stallions, of a dozen different breeds, are distributed among 689 local centres. That is something like business. But the money is raised in somewhat a novel fashion. Two-thirds are provided by the Government, and the other third is what we may fairly call the tax on betting. We do not understand the system, but it appears that all betting is conducted on the totalisation system, and 8 per cent. of the profits are awarded to various purposes, such as the law may direct.

Last year £122,800 provided prizes for the breeders of winning horses, and the same sum has been set apart for such things as the Minister of Agriculture may deem advisable. The idea of prizes to the breeders of winning horses strikes us as being very good, for often the poor breeder gets left out in the cold, and has only honour for his reward. We are not quite sure we like the method by which the money is raised, and we doubt if it would ever be popular here.

Our cavalry require 1,500 horses annually, and one would think that that number would not be difficult to come at. Neither would it if the sum offered for horses were large enough. No breeder can afford to sell a really good animal at the Government figure, so that the best go abroad, and only the second best are left at home; and this is when the Army is on a peace footing. The first step, we think, is to increase the price paid. Make it more tempting; in fact, the extra money would pass into the hands of the farmers, and they are a very essential part of the nation.

A short time ago the Government had first call upon those horses that compose the large town studs, the omnibus and tram horses, but where are they now? But we hear there is a scheme on foot to remove the difficulties experienced in procuring horses for the Army. As it is not fully matured we cannot speak as to its merits or demerits. Really, after all, it comes back to the old question—£ s. d. People are always ready to produce that for which they can get a good price.

Summer feeding for the horses, both light and heavy, will consist in a great measure of cut green forage. There is nothing so wholesome and cooling to the system after the long course of dry stuff on which they have been fed during the winter months. Of course, no horse can do really heavy work on green meat alone; but the judicious horse-keeper will make a careful blend of fresh green stuff with dry fodder. The danger during the past fortnight is that the horses will eat so greedily of pleasant food that indigestion and colic will be set up. The better plan is to put an equal quantity of straw through the chaff-cutter with the green meat. The one will act as a corrective to the other. This plan may be adopted also for longer than the first fortnight. So much depends on the supply of green fodder. Farm horses must also have a daily supply of corn. The quantity depends on the amount of hard work expected from them. Green forage should be given fresh cut, as it so soon becomes stale, and therefore unsuitable.

Evening is the best time to give the heaviest feed of green fodder, and at the same meal corn should be offered as well. We could write volumes on the corn itself, for the word "corn" is so all-embracing. A great deal is not worthy of the name. It is thin, light, and poor, and not always sound. The farmer errs less in this respect than the average horse-keeper. He does know good stuff when he sees it, and he also knows he cannot keep his team in working condition on rubbish. Good oats make condition; they do not make useless fat.

How seldom do we now see hunters turned out to grass during the summer. It has been proved over and over again that they really do so much better, and come up to the winter's work so much fitter if they are kept in a loose box and are comfortably tended. A little corn and plenty of the best green food is given. There is more work for the grooms, no doubt, and the system is not so cheap as the old one; but there is less danger of lamming and strained sinews, and the pastures can be much more profitably stocked with cattle. We think there can be no one found who will allow that horses improve a pasture by grazing. We are not now speaking of young stock, which must have a playground of some sort; we are thinking of mature stock.

Even with young stock accidents are common and almost unavoidable, but they must be kept cheaply till they can earn their victuals. And again, in cases of acute, but not hopeless, lameness, a grass run may prove of the greatest benefit; at any rate, it is a cheap remedy and worth a trial.

Talking of grass-keeping, Professor Wrightson speaks of water meadows, which must be a mine of wealth to the owner, for he says they are readily let at £6 or £7 per acre. Where the profit comes in for the tenant we fail to see, unless they are much more fertile and prolific than any pastures we ever came across. We know of low-lying meadows, the herbage of which was of great value in a dry time; but let there be a little excess of rainfall. Well! the tenant had fishing gratis, and all stock had to be moved in a hurry. Perhaps our experiences have been unfortunate. We daily see land let at what we consider very out-of-the-way rents, but £7 per acre is land we have not come across except in print. Neither do we yearn for any of it.

Work on the Home Farm.

Crops are growing fairly well, and both grass and seed pastures have improved; but little or no progress is possible on the land, as there has been rain, with few intervals, for four or five days; and as we write a violent thunderstorm has just passed over. We should have reported snow instead of rain on one day. As it is now mild, vegetation makes good headway on all well-drained soils.

There should be no plant of clover missing this season. There has been no chance to roll or harrow wheat, but the beating rain will have done something to make the land firm.

We have an object lesson in bean cultivation. About three weeks ago part of a field was skerried, but the weather has prevented the work being completed. No one passing that field could help noticing the more promising appearance of the cultivated portion. Beans have stood the winter well, but are not so forward as they were twelve months ago.

We saw yesterday a very fine plot of lucerne almost ready for the scythe, and thought how valuable such a crop would be to any dairy farmer or small holder. Its value would be even greater in a dry spring and summer.

Our anxieties about the cattle are allayed. There is plenty of grass and warmth, so they will bear getting a few drenchings of rain.

Sheep shearing has been much hindered through difficulty in getting the skins dry enough. A good number of sheep have been kept from market owing to this, and the gluts of April have been succeeded by light supplies and better prices.

Pig food is scarce, as there are no offal potatoes left, and sharps and meal are as dear as wheat. How valuable a few good mangolds are to a pig-keeper! We know several working men who keep pigs, and have an acre or two of land. They prize their mangolds as highly as they do their potatoes.

Pork is cheap, though it is not too plentiful, and will probably increase in value before midsummer. Breeding-sows are more numerous than feeding porkers at present.

Beef is meeting an excellent demand. A reliable judge assures us that bullocks realised 7½d. per lb at one market during the week.

We have got our waterglass jars filled with eggs, for which the pheasant rearers are making enquiries for them.

Hay Importation Order.

The Board of Agriculture and Fisheries has been informed by the Department of Agriculture and Technical Instruction for Ireland that the Order issued by the Department on the 2nd March last, prohibiting the landing in Ireland of hay or straw brought from a port or place in Great Britain has been revoked, as from the 1st inst.

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Journal of Horticulture.

THURSDAY, MAY 21, 1908.

Employers as Gardeners.

SOME time ago a writer in the
Journal of Horticulture drew a
pen picture of an old type of
private gardener who has prac-
tically dropped out of the ranks.
He lived in the days when gardening
was not the fashionable hobby of
the wealthy, the same as it is now, and
though gardens were probably as well, or
better cultivated than in many cases

at the present, the gardener was the ruling
spirit who planned and directed and ruled,
somewhat autocratically perhaps, within his
domain. It was the business of the gardener to
look after the garden, to supply the establishment
with flowers, fruit, and vegetables, and in this he
brooked no interference. The ways and means
by which he produced the different crops were
his own concern, and the idea of his employer
enquiring into the details of cultivation and
management would probably have horrified him.
Indeed, it is said of this type of garden autocrat
that he objected to any member of his employer's
family cutting a flower without his approval, and
if such a thing did happen he took it as a slight
on his position. The idea of his employer
knowing anything about gardening was foreign
to him, and in addition to the privilege of paying
the bills, it remained for my lord or my lady to
simply enjoy the good things which the gardener
provided for them.

Things are different now, and the position of the
gardener has altered accordingly, in some cases
perhaps for better, and in others for worse. It
is true that there are establishments, a few of
them, in which things are carried on in the old-
fashioned way, very much the same as they were
in the journeyman days of the writer, when due
notice was given that her ladyship would walk
through the houses at a certain time, and all the
floors had to be swilled and mopped beforehand
lest her dainty shoes should come into contact
with puddles. On these red-letter occasions the
head gardener acted as guide, expressly attired

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for the occasion in his tall hat, and with a superior air he explained the cultivation of this or that plant which attracted her ladyship's attention. As a matter of fact she might have been walking round an exhibition instead of her own garden, with the plants and flowers on show for the occasion, so little did they seem to belong to her. I say there may be some of these establishments still in existence, where everything is left to the gardener who rules supreme in his own department, but if so, they are growing less, and there is a possibility of the other extreme, namely, that of the employers becoming the gardeners.

This is not altogether desirable from a gardener's point of view, for though it is a good thing for him if his master or mistress takes an interest in the garden, spends money on it, and delights to maintain it well, it is not conducive to his peace of mind when the employer takes it upon himself to teach the gardener his business by indicating the proper culture of this, that, or the other plant or crop. Yet we frequently hear of cases of this kind in which the employer is actually the gardener, until something goes wrong, and then the poor servant is made to realise his position.

The interest displayed by the wealthy in horticulture is greater now than it has ever been, and it is prompted by different feelings. One is a genuine love for gardening, which is very much to be commended, and there is nothing we like to see better than a lady or gentleman who has means to afford it assuming gardening as a hobby. Amongst these true lovers of gardening we find the specialists, the individuals who take a particular delight in some plant or flower, and make a hobby of its cultivation. It is through the efforts of such that great strides have been made in the improvement and development of flowers and plants, but it is not to be expected that such individuals will be contented to merely walk round their gardens, merely look at their favourites from time to time, and leave all the details of cultivation to the gardener. Nor is such a thing desirable, for the true garden lovers and the specialists have the power of inducing gardeners to share their interests, so that they become mutual, and the two are happy because they are walking on common ground. It is a very different thing for an employer to work with his gardener, allowing the latter his place and respecting his knowledge and experience, to that treatment which consists of taking advantage of the gardener's position, and setting him down as a mere ignoramus who is full of prejudices and old-fashioned ideas.

But they are not all garden lovers who profess to take an interest in horticulture in these days. Some do it because it is the correct thing, and it is fashionable "to garden," the same as it is to play tennis and pay calls. This spirit is to be found more particularly amongst ladies, who are now to be found in the garden when their friends call on them, wearing thick boots, short skirts, and gloves to protect their hands from the soil. Their grandmothers would have been shocked at such a thing; but there, it is correct now, and the small-talk over afternoon tea is on gardening; but should the fashion change, the horticultural part of the establishment would again be left to the gardener. One has only to visit a Temple Show to get evidence that gardening is fashionable, and from the conversation one hears one is able to get a good idea as to who is the gardener in the establishment away in the country. A glorious advertisement for the trade is the great annual gathering in the Temple Gardens, and no one blames the nurseryman for presenting his best on that occasion; but there are gardeners, I fancy, who would vote for the abolition of the Temple Show if they could have their way. There is the lady, for instance, whose pet delight for the moment is hardy herbaceous and alpine plants. In the pocket of an artificial rockery on the table she sees the little gems of the alpine family blooming most profusely. She does not inquire how or where they were grown, but asks for directions of culture, which are promptly given, and turning round to the friend who attends her, she wonders why the gardener does not grow them like that. She is sure he must be treating the plants wrongly, and will write and tell him how they ought to be grown. Needless to say, the position of the home garden may be entirely different to that under which the show specimens were grown, but that is part of another story, and not considered when the lady asks with emphasis, "Why can't we have them like that?" and any answer the poor gardener may give is taken as an excuse for incompetence.

But amongst the employers who are gardeners, preserve me from the faddist, the lady or gentleman, more often the former than the latter, who is struck with a fascination for the moment for some particular plant or flower, and can see nothing pleasing or beautiful in anything else. For the time being the resources of the garden in the way of labour and material are drawn upon for the sake of the hobby; but the gardener knows that he must, by hook or crook, keep other departments up to the mark, even though he may be at his wit's end to know how to do it. The faddist generally wants things his or her own way, and such a thing as asking the advice of the gardener is not thought of. In all probability the latter is not in sympathy with the fad, which explains something, though it can be easily accounted for, because while one particular item is getting all the attention, the rest of the garden is suffering. But I need not pursue the

topic further, as I have said enough to show that there are places in which the employer is partially the gardener, and where the individual who bears that name is nevertheless happy and comfortable. But it may be well to draw a kindly veil over those establishments in which the master or mistress is actually gardener, and the gardener, what is he? Well, his position is not easily described.—H.

Although the perfumes of plants appeal only to our olfactory organs, and not at all to the eye, they are none the less interesting as having doubtless been a very material factor in plant evolution. Our perceptions of these are indubitably far inferior in keenness to those of the insect, **Plant** **Perfumes.** or even the animal world, for the sense of smell with us is the least essential of all, and has therefore been the least developed. Nevertheless, weak as it may be, it is very marvellous that the infinitely minute particles thrown off by odoriferous bodies when they come into contact with even our olfactory nerves, instantly exercise such an effect upon them that the brain as a rule at once recognises their source, discriminating between very fine differences, and calling in the power of memory to its aid, dictates attraction or repulsion with unerring accuracy.

In the animal world, to take the bloodhound as an example, we find a delicacy of perception altogether beyond our comprehension, since cases have been known where a booted man has been tracked over ground trodden by many others, simply and solely by his individual scent left on the soil by his feet, despite the intervening leather. Such ground must inevitably have been a labyrinth of different and yet presumably kindred scents, each one in its turn impressing the dog's sense of smell, and rejected in favour of the one which for a very brief period had been impressed upon it at the outset of the search from some article belonging to the hunted man. This is amazing, but is probably far transcended in the insect world. The entomologist, for instance, can tell us of innumerable cases where very rare moths have been caught in numbers by the simple expedient of trapping a female one, round whose prison the others ere long are found to be hovering, though the cage must be at a great distance from their normal habitat. Nothing but an extraordinary keen sense of smell could have brought them thither, and this means that the tiny captive must have affected the atmosphere for probably miles around her, though to the human nose nothing at all was appreciable.

In the plant world, apart from the obvious and often strong odours diffused from both flowers and foliage, the majority of which afford the plant-lover great delight, there must be also innumerable far more subtle ones entirely beyond his ken, and yet capable of attracting insects and similar organisms from considerable distances. We have in mind the case of a fern, *Campsoorus rhizophyllus*, the so-called American Walking-Fern, which it is almost impossible to grow in an ordinary collection, since, however free from slugs the locality may be, they inevitably find their way to it and devour it. It seems to have an irresistible attraction for British slugs, though obviously in its natural habitat it must be more immune from attack. Even certain varieties of certain species must have their special attractions for preying vermin, since in two instances in our experience, both rare and unique varieties, weevils have been found preying upon them day after day, though, of course, destroyed each time they were found; while adjoining plants were constantly ignored by them.

The curious feature here is that, if the search were omitted for some days, there would still be only one weevil, but that one removed, another took its place very shortly afterwards. Repeated attacks of this kind are not rare, and can only be accounted for by a subtle individual odour extending for some distance. Such odours are doubtless frequently repulsive, instead of attractive, to the insect world, and have been evolved as a protection. The human palate and the olfactory nerves are so closely allied that taste and smell depend a good deal upon each other, and as a rule we can to some extent judge of gustatory flavour through the nose. This alliance probably exists in the insect organisation also, and it certainly happens that when a slug or a weevil finds its way to a presumed tit-bit by the sense of smell as assumed, it finds no obstacle in the taste of it to a hearty meal. Their tastes may differ entirely from our human ones, for we remember mulching a choice specimen of *Asplenium Nidus-avis*, a specially tasteful tit-bit for Master Slug, with strong tobacco refuse, only to find it prove an additional attraction as a sort of condiment to its more tender associate.

Of the really repulsive odours, unfortunately we know too little to profit by them as fortifications against invasions of this kind, for repulsive ones to our senses are sometimes attractive to insects, as is evidenced by the curious plant *Rafflesia Arnoldi*, which, imitating the odour of foulest carrion, is consequently beset by hordes of flies which, however, pay the penalty for their mistake by sacrificing their eggs, the resulting maggots when hatched not being vegetarians, and consequently perishing.—D.



Aerides vandarum, Kirke's variety.

This dainty blush-white flower, almost fairy-like in its grace as seen upon the plant, received an award of merit from the R.H.S. Orchid Committee on April 28 when shown by Mrs. Beverington, Murle Wood, Sevenoaks (gardener, Mr. Huxley). It is a variety of the well-known terete-leaved species.

Catasetums.

This curious genus is not often met with except in large collections, or in botanical gardens; but there are one or two members that ought to receive more attention from cultivators. I refer to *C. Bungerothi* and *C. macrocarpum*. They are remarkable for the peculiar structure of the flowers, and the difference in size and colour of the male and female blossoms, which usually appear on separate spikes, but not always at the same time; although I believe it is on record that both male and female have been seen on the same stem, but it is a rare occurrence. The pseudo-bulbs are short and stout, have several plicate leaves at the end, while the flowers are fleshy and wax-like. The way in which they discharge their pollinia when disturbed is very interesting.

During the growing season *Catasetums* need warm-house treatment, such as the plant stove, or among the *Dendrobiums* if a structure is set apart for that useful class of orchids. When the growth is 3 in long root action begins from the base of the newly-formed shoot, and at this period any repotting may be done, which should take place annually for the robust species. A generous soil ought to be provided on account of the numerous roots; in a few instances aerial roots are produced very freely. Ordinary flower pots make the best receptacles, or where space is none too plentiful teak-wood baskets can be employed, which allows for suspending the plants from the roof.

Ample drainage is essential when using flower pots, but a layer of dried peat sticks is sufficient for the baskets. The compost should consist of fibrous loam, peat, or polypodium fibre, and chopped sphagnum moss in equal parts, with a sprinkling of silver sand to make it feel gritty to the touch. After the repotting is finished little water is needed at the root for the following few weeks, by which time the plants are re-established, and the supply can be gradually increased. About August many of the *Catasetums* will show signs of flowering, and as they pass out of bloom, and the bulbs finish their season's growth, a long rest is given under somewhat drier and cooler surroundings. It is possible that some will also shed their leaves if the pseudo-bulbs are properly ripened. The finest *Catasetum* in cultivation is *Bungerothi*, which is nearly pure white when fully expanded; and a suitable companion is the free-flowering *macrocarpum*; while *fimbriatum* and the beautiful *splendens* should be included.

Mormoder.

These are closely allied to the genus named above, and may be grown under the same conditions, but annual potting must not be practised. They require plenty of heat and moisture when in full growth, and afterwards a decided rest. The two generally found in collections are *buccinator* and *pardinum*.

Chysis.

The flower scapes of *Chysis* are produced with the new shoot, and directly these are removed repot the plant if necessary. They should occupy a shaded part of the warm division, and be kept well supplied with water throughout the summer.—T. ANSTISS.

Temperatures.

The dormant season, which usually follows the flowering season in orchids, is that in which the plants may be kept as cool as possible, and in a more or less dry condition of the potting; but as soon as this season of rest is completed and renewed vitality is visible in the production of new growths, encouragement may be given to the plants to assist such growths. As stated above, the present being the season when so many new growths make their appearance, it is desirable that the temperature of the house should be kept as even as possible, and as growth advances the heat should be gradually raised until the plants reach their full growth, when the maximum temperature should be maintained until the growths and pseudo-bulbs have reached maturity. Such conditions as those recently experienced outside will naturally have caused fluctuations of temperature, but this must be guarded against as far as possible by the discreet use of roof blinds and ventilators by day, and the heating apparatus when necessary, and thus as even a temperature as possible be maintained.

Sweet Peas.*

American Notes on the Winter Varieties.

It is only within the past ten or twelve years that the Sweet Pea has been placed before the people in the winter months. By growing the old varieties under glass it was only possible to have them at the most five months of the year. With the advent of the early flowering section it was made possible to cut flowers all the year. The first Sweet Peas I grew under glass were such varieties as *Blanche Ferry*, *Emily Henderson*, *Katherine Tracy*, *Countess of Radnor*, and *Emily Eckford*. These are of the late or summer flowering section. These varieties when sown under glass in August would not come into bloom until the end of the following April, and seed sown in January would flower as early as that sown in August. They have a season of flowering and will not flower before that time, no matter when the seed is sown. The early flowering Sweet Peas are just the opposite in this respect, for in many cases they commence to flower when only a few inches above the soil, and, if sown in July, they will flower in August. They make a very poor growth in summer, and do not do so well as the late varieties. In the winter months, however, they make a very strong growth, and while making this growth they flower, and I feel safe to say that the flower produced then is far superior to the late flowering varieties.

ORIGIN.

The origin of the winter-flowering Sweet Pea is something that seems to be a mystery. There are several who claim this



Aerides vandarum, Kirke's var.

distinction. A. C. Zvolanek, of Bound Brook, N.J., is one. He asserts that he made his first experiments twenty-five years ago, but did not succeed until he made a cross with a European Vetch. In January, 1892, he found some of the plants producing flowers, which were small in size, and the plants only attained the height of 2 ft., but by crossing and recrossing, a strain producing large flowers on long stems, and growing 6 ft in height, was secured. At this time Mr. Zvolanek was not in business for himself, and raised them mainly for pleasure, and gave seed to any of his friends who wanted some. While in the employment of Thomas Young, of New York, 1895-6, he had two houses of Christmas Pink. If this story is correct it shows that he must have had them about the time he states in order to get seed enough to plant two houses in 1895. This was three years before it was put into commerce by Burpee.

The origin is also claimed by Thos. Gould, of Ventura, California. This is the variety sent out by Burpee as Earliest of All in 1898. If I am right I think this strain of Mr. Gould's was first seen in flower among plants of *Blanche Ferry*. In 1898 Mr. Zvolanek started with Emil Leuly, of West Hoboken, N.J., and had at that time six houses of Christmas Pink and Florence Denzer. Now there is no difference between Florence Denzer and Mont Blanc. They are the same in every respect. Benary, of Erfurt, Germany, sent out Mont Blanc, I think in

* A paper read by Wm. Sim, Cliftondale, Lynn, Mass., before the Gardeners' and Florists' Club of Boston, Mass, U.S.A., April 21.

1902, or four years after Mr. Zvolanek was raising it in Hoboken. No doubt, if Mr. Zvolanek would again cross with the Vetch the old varieties, and secure an early-flowering strain, his claim would be substantiated. He has promised to do this.

SPORTS.

Many say that these varieties are habit-sports, that they produce flowers identical to the late varieties that they sported from. I do not believe they do sport myself, for I have grown a great many both inside and out, and have never had one sport with me. Mr. Zvolanek, who has raised practically all the winter-flowering varieties, says he has never had one sport with him. Mr. Zvolanek raised Christmas Captain as a result of a cross between Captain of the Blues and Christmas Pink. A grower in England claims Captain of the Blues sported with him from the late to the early type, but I believe this was only a stray seed of Christmas Captain which had in some way got among his Captain of the Blues, for he was growing seed of Mr. Zvolanek's at the time. I think the cause is apparent. It is also possible that if he were growing the two types side by side cross fertilisation may have taken place, and the early flowering one may have been the result. It is asserted by some that Sweet Peas do not mix, but the more I grow of them the more convinced I am that they do mix more or less. There is not one variety I grow but what quite frequently exposes its pollen and pistil, so in this case what is there to prevent insects or flies from carrying the pollen? Some say these are deformed flowers, and would not go to seed anyhow; but this is not the case, for if they are left on the plants they go to seed every time and produce fine seed. I am told this is far more marked on the seed farms in California than in a greenhouse. I believe the early Sweet Pea is the result of a cross between the old type and some other species. I do not believe the late Sweet Pea can sport from the late to the early flowering, and will only believe so when I have conclusive proof that this is the case.

TYPES.

There are three types of the early Sweet Pea, the wavy or Spencer type, the common type with the broad straight standard, and the incurved or hooded type. As yet the Spencer type seems to me a little soft for commercial purposes, but this fault may be remedied in new varieties. The standards, which are wavy, have not got the strength of the common type, and fold together when the flowers are bunched in such a way as to make them look small, although the flowers are larger than the common type. The common type, although not so large as the Spencer, is the best for commercial purposes; their stiff straight standards do not fold together, and the flowers remain open. The incurved or hooded are the least desirable; their flowers look small beside the ordinary type. They, however, have very long, wiry stems, and some of the best fancy varieties are of this type. They are also very strong growers.

HYBRIDISATION.

Most of the varieties, with the exception of the ones sent out first, are the results of crossing the early and late varieties together. This is done at the time the two types are in bloom together. Mrs. Charles Totty, Mrs. Alexander Wallace, Mrs. George Lewis, Christmas Captain, W. W. Smally, and a number more, are the results of crossing the two types. Varieties raised by crossing the early type with the same type are usually weak growers. It seems to take the blood of the late varieties to give them constitution. I noticed this the past winter on a batch of recrossed Christmas; this was Christmas crossed on the late flowering Blanche Ferry. There was about 50 per cent. of the old type among them, but the early flowering ones were very much stronger and produced flowers on longer stems than Christmas, and grew 3ft higher.

There are now strains of these Peas in England, Germany, and Algeria. I am unable to give much information about these, as I have never managed to get any of the seed. I have seen the Algerian strain growing at Mr. Zvolanek's; they were not in flower then, but the growth and habit were identical to what we have here. He later sent me some of the flowers. They were very poor; in fact, they were certainly ten years behind what we have here now. Flowers of the English strain resembled the Algerian strain, and Mr. Zvolanek says they are the same varieties or mixture he sold five years ago to the firms who are selling the seed. It is very hard to hold the stock of any one variety by the raiser, because it is sent to California to be grown for seed, and while there the seed can be carried from one place to another.

(To be concluded.)

The Foam Flower.

No plant on the rockery in a week or two will be of more interest than *Tiarella cordifolia*. It flowers a long time, and its blotched leaves and pure white erect plumes of feathery flowers are showy and usually freely produced. As an edging plant it is excellent.—E. M.

Trees and Shrubs.

Phillyreas.

The name is derived from *Philyra*, the old Greek name used by Theophrastus for the Privet, and in popular language the genus is known as Jasmine Box or Mock Privet. The species are only four, at least I only know that number, and all are hardy evergreen shrubs, natives of the Mediterranean region and the Orient. One may be led to conclude that they are tender and requiring sheltered situations. This is certainly a delusion, as far as the Midlands is concerned, as they thrive in almost any soil, and do singularly well in windy situations. All have white flowers, fasciculate in the axils, and though small, they are remarkably pretty and profusely produced after the plant has thrown off the vigour of youth, and are followed by drupes of globose or ovoid form. The best for flowering is probably *P. decora*, or the form of it known as *P. Vilmoriniana*; while the best for growth is *P. media olesefolia* if a bush be desired. *P. angustifolia* is narrow-leaved, and of similar spreading habit to the preceding. *P. latifolia* is the likeliest for forming a hedge, as it bears cutting well, and is preferable to the Common Laurel, and succeeds where Portugal Laurel does not thrive. Why not use Phillyreas as hedge plants? The flowers are produced in May, and the variation from the everlasting Privet is surely worth consideration. The foliage is deep green, midway in size between that of Box and the Portugal Laurel, altogether more compact than Privet, and never injured by frost or wind.—A.

Market Gardening Notes.

FORGET-ME-NOT, HELEN WILLMOTT.

This is a beautiful thing, good for either plants for boxing, or for cut market bunches.

CYPERUS ALTERNIFOLIUS.

A Sedge, common enough in its character, but still a leading market plant. Messrs. H. Williams and Sons, of Fortis Green, N., inform me that their forbear, the late Henry Williams, was the first to introduce this into Covent Garden, over forty years ago. Now they grow whole span-houses of it. Sow thinly from imported seed in May; prick into shallow boxes or 60's when large enough to handle. To-day I found them potting them up into 48's. Up to this date the young seedlings have been standing on ash paths, where Ivy-leaf "Geraniums" are growing. Now they will have a span-house filled up. Tomatoes will run up from the sides, as also the centre of houses, these making shade for them. It is a water-loving plant, but not necessarily an aquatic, and is grown cool for market.

POT VINES FOR MARKET.

Very little is really done in England in this line. At the same time I have successfully fruited pot Vines for a series of years (three or four), then cut hard down, and as they broke, shook out and planted them in the late Spring. A correspondent, writing from Guernsey, says:—"Have potted up some Alicante, which I am going to put in theinery to fruit next year, just as an experiment. Have you heard of it being done before? How long do pot Vines last? Thomson says two years. I am only putting one row down the centre of the house, but am rather afraid they will be too much shaded by the old Vines." Estimating the yearly weight of Grapes at from 4lb to 8lb each from a No. 10 pot, it could be readily totalled up. Beans make a good ground crop with the pot Vines; also Potatoes. I have done the latter in the same size pots—No. 10. The weak year generally is after the first year's cropping. This, however, is due to want of wood ripening. Hamburgh is far the best for this purpose. Next is Alicante, which does well. Muscats are also good if canes are well ripened. Canon Hall I have also done well—three or four bunches, then cutting down to the bud nearest to the pot, and planting out.

CHALK FOR VINE BORDERS.

After a series of years' successive fruiting, with its necessary feedings and waterings, borders get sour. Especially is this so on stiff soils. The simple remedy is a dressing of ground or fine chalk. Dust evenly over the borders, and fork it in. Chalk varies, but the one which contains the most phosphate of lime is to be preferred.

THE 1785 WROTHAM PARK VINES.

From the commercial side of the question, there is very much of interest here. In some eight years, by a plan of hard pruning, what was a wilderness of old snag spurs is now a series of young bearing rods. Mr. Markham, however, not content with clearing away the very old wood, still pursues a system of running up young rods, and taking out the older rods. There is no better example in England of Vine making and good Grape growing.—STEPHEN CASTLE.

NOTES & NOTICES

International Agricultural Institute.

Sir Thomas Elliott, secretary of the Board of Agriculture and Fisheries, has left London for Rome in order to attend the meeting of the Permanent Committee of the International Agricultural Institute.

Flower Shows at Birmingham.

The Birmingham Botanical and Horticultural Society has decided to repeat the two extra flower shows held in 1906, and continued last year. The forthcoming shows will be held at the Botanical Gardens, Edgbaston, on June 11 (orchids and early summer flowers), and July 15 (Roses and midsummer flowers.) Honorary exhibits of flowers, fruits, &c., will be welcomed. Schedules may be obtained from the hon. secretaries at the Botanical Gardens, Birmingham.

Flower Culture in the Fens.

Very heavy consignments of Daffodil bloom, representing some millions of flowers, have been sent from the Lincolnshire Fens during the past week, consigned to London and all parts of the country. The week has been the busiest of the season, and the consignments the heaviest, and from Spalding railway station alone over a hundred tons of bloom have been despatched. Owing to the increased supplies, prices have fallen somewhat. The culture of flowers in the Fens has now become one of the most important industries of the district.

The Grand Yorkshire Gala.

We would remind our readers of the forthcoming Jubilee celebration of the Grand Yorkshire Gala, Floral and Musical Exhibition, which will be held at York on June 17 and two following days. By the courtesy of Mr. Arey, the secretary, we have received an account of the origin and progress of the gala. Since its inception in 1858, no less than 1,844,817 persons have paid for admission to the grounds, and £26,000 have been disbursed in prizes in the floricultural section. A thousand guineas is the amount offered to the gardening fraternity. This year the show promises to be a great one, and given favourable weather it will also be a grand success. The gala has handed over £2,682 to various charities.

Garden Accidents.

The thousands of householders who hold suburban gardens will be interested in a claim decided at Brentford County Court on May 14 under the Workmen's Compensation Act of 1906. A workman named Bentley claimed compensation from Mr. Douglas Allport, of Bedford Park, Chiswick. Bentley fell from a ladder in Mr. Allport's garden, broke his collar-bone, and was incapacitated, he stated, for fifteen weeks. He admitted, however, that he only worked when required; he had no regular days, his charges varied according to the length of time, and, having a gardener's business of his own, he sometimes sent a man to Mr. Allport instead of going himself. Judge Howland Roberts held the claimant was a casual worker, and dismissed the claim.

Notes from Wroxham, Norfolk.

Trees have been unusually late this year in bursting into leaf. In some instances this event is fully three weeks behind. With the exception of the Oak and Ash, every tree is now in full leaf. Many things, of course, will benefit by the belated Spring. Apples should be a good crop, for as yet we have no blossom out, but a few more days of like weather as we are now having will work a change. Cherry trees are now in full blossom, and give quite a gay appearance to gardens and orchards. Gooseberries, Currants, Plums, and Apricots escaped the ravages of the frost and other unnatural storms of last month. Outside Peaches, as would be expected, fared badly, and the prospects of good fruit is as uncertain as usual. The hay crops are now secure, for the abundance of recent wet weather has given the land enough of sap to carry the crop till mowing time. The crop in all likelihood will be a good one. The country is looking its best, the young foliage being so beautiful and tender.—D. C.

"Eighteenth Century Gardening."

In the last instalment on page 427, "The spangled bean ficoides" should be "The spangled beau ficoides."—R. P. B.

The Ghent Show.

Messrs. Hugh Low and Co. notify us that they have just been informed by the Ghent Quinquennial authorities that they were awarded a special prize and medal for their exhibit of Carnations at that show. This was not announced in time for the reports of the show.

"The Royal Gardens, Kew, Illustrated."

Those who have seen Mr. E. J. Wallis's illustrated guide to Kew Gardens will know how to value this new and improved edition. Many of the blocks are new, and all are of the finest, for Mr. Wallis is on the spot, and can choose the best time for obtaining high-class effects in photography. This is by far the best of the numerous guides, and though largely devoted to illustration, it also contains a considerable amount of descriptive and historical text. The price is 1s. net.

The French Gardener.

The French gardener's chief secret is continuous care. He has no hard work, but he has unceasing work. He usually glazes, and to some extent makes his own frames. He is a handy man. He is so economical of space that he cannot endure to see an inch left bare, and sows his crops so that when one is ready to cut, another almost beneath it is coming to use. The paths between his frames are of the breadth of two sabots side by side, that and no more. He has the scientific spirit. Little thermometers tell him the exact heat of his frames, and he keeps records of dates and unusual occurrences.

"Votes for Women."

On Wednesday morning, the day of the Suffragettes' demonstration upon the Thames Embankment, the women had decorated the statue of John Stuart Mill, which is the most easterly statue in the Embankment Gardens, with a floral advertisement of "Votes for Women." As advertisements upon public statues are not, we believe, allowed, Mr. Frank Wright, the superintendent of these gardens, was under the necessity of removing the "decoration." It consisted of a panel done in double white poet's Narcissi, on a groundwork of Bay leaves, and had been executed by a Covent Garden firm. The Suffragettes had had leave to place a floral decoration on the statue, but this is different from an advertisement.

A Fruit Grower's Loss.

An action bearing on railway transit for fruit growers and small farmers, as well as consumers, was decided on May 18, in Wisbech County Court, says the "Daily Mail," by his Honour Judge Mulligan, K.C. The plaintiff, Mr. Cross, was a fruit merchant at Wisbech, and the defendants were owners of the Eclipse Preserve Works at Wigan. Mr. Cross claimed £95 15s., the price free on rail of Strawberries sold to the defendants. On July 4 last year the defendants sent Mr. Cross a telegram offering £22 a ton for ten tons of plugged Strawberries. He accepted. Having obtained Strawberries from eight separate growers, he put them in two lots, free on rail, on the Midland Railway at Wisbech St. Mary Station. Each lot was consigned to the defendants on a Midland Railway consignment note, endorsed "per L. and N.W." The first consignment of 174 tubs left Wisbech St. Mary on July 17, and did not arrive at Wigan until the 19th. The second consignment of sixty-seven tubs left on the 18th and did not arrive until the 20th. The defendants refused to accept either lot because of the delay in transit and the bad condition of the fruit—they were fresh fruit when despatched; they had become unfit for use as human food on the long journey. The question the judge had to decide was whether or not the defendants were entitled, under the circumstances, to refuse to accept the Strawberries. His Honour decided that they were entitled to refuse, because Mr. Cross in previous years had sent the defendant company 400 tons of Strawberries by Great Eastern and L. and N.W. Railways from the former's station at Wisbech, by which they arrived at Wigan early on the following day, and that his choice of the different route (though it was shorter, via Peterborough) was a breach of duty. The Midland system first touches the L. and N.W. at Peterborough, but goods will not be transferred there by the Midland, which sends them round the country to Buxton.

The Tents are Up!

The marquees and tents for the Temple Show were already mainly erected on Tuesday evening, the 19th inst. Mr. Wright believes in getting to work in good time; but the poor grass of the Temple Gardens suffers. The show opens next Tuesday at noon, continuing for the two following days.

The Guildford and District Gardeners' Association.

At the fortnightly meeting of this association, held on Tuesday, May 5, Mr. W. Hogsden presiding, an interesting and instructive lecture was given by Mr. D. Watson, of Sutton Place Gardens, on "Water Gardening." The lecturer gave details of the formation and arrangement of water gardens, both on a large and small scale, and named many of the most suitable plants. A hearty vote of thanks was passed to Mr. Watson.

Dutch Bulb Growers' Prizes.

The Dutch Bulb Growers' Society of Haarlem has again offered prizes for forced Hyacinths, similar to those offered for competition this year. These will be competed for at the Royal Horticultural Society's exhibition on March 9, next year. There will be six classes in two divisions, the prizes ranging from three guineas as first, to one guinea. Particulars may be had upon application to the Secretary, R.H.S., Vincent Square, Westminster.

British Gardeners' Association.

At the last meeting of the B.G.A., held on May 12 (Mr. Chas. Foster in the chair), seventy-eight new members were elected, and two candidates were declined. Questions affecting the payment of wages, one to a Northampton member, and the alleged grievances of men at Kew, were considered, and will come up for further report. Arrangements were made for the annual general meeting, which will take place at the Essex Hall, on Wednesday, May 27, at 7 p.m. A very large meeting is anticipated.—J. W.

R.H.S. Committees to Visit Frogmore.

Through the Council of the Royal Horticultural Society, His Majesty the King has been graciously pleased to allow the members of the Standing Committees of that society, scientific, floral, fruit and vegetable, orchid, and narcissus, to visit the Royal Gardens at Frogmore, the date so far fixed being June 10. The party, which will be a large one, will be entertained to luncheon by the Mayor in the Windsor Town Hall, after which they will drive to the gardens. These during the past few years have undergone a wonderful change, and are now probably the finest Royal gardens in the world. All the glass houses have been removed and larger ones rebuilt.

The Nursery and Seed Trade Association, Ltd.

The annual general meeting of this association was held at the offices, 32, Gresham Street, London, E.C., on April 27. Mr. G. Bunyard (Messrs. Bunyard and Co., Ltd., Maidstone), presided, and there were also present the following members: Mr. Arthur W. Paul (Messrs. William Paul and Son), Mr. William Bull (Messrs. Bull and Sons), Mr. G. H. Barr (Messrs. Barr and Sons), Mr. H. W. Nutting (Messrs. Nutting and Sons), Mr. A. E. Protheroe (Messrs. Protheroe and Morris), Mr. B. B. Maller (Messrs. B. Maller and Son), Mr. A. E. Silberrad (Messrs. R. Silberrad and Son), and Mr. C. W. Nieuwerf (the Harrow Nursery Co.). The report of the committee submitted to the meeting showed that the financial position of the association was improving yearly; the amount standing to the credit of the association on December 31 last was £169 7s. 4d., consisting of £121 5s. 10d. at the bank and outstanding subscriptions, commission, and status inquiry fees amounting to £48 1s. 6d., part of which has since been paid. The members present at the meeting stated that the association had been of great service to the trade, as it had during last year answered 870 status inquiries, and had collected accounts amounting to £5,515 11s., principally in small sums, after the members had done all in their power to obtain payment by letters. The association had expended £19 3s. 8d. in making special inquiries relative to persons seeking credit. Mr. N. N. Sherwood (of Messrs. Hurst and Son) was re-elected president of the association; Mr. W. J. Nutting was re-elected treasurer; and Mr. G. H. Barr and Mr. H. Simpson (Messrs. Cooper, Taber and Co., Ltd.), were re-elected trustees.

Our Veterans' Gallery.

II.—Mr. J. GEORGE.

The first of this series of papers, in which it is intended to collect reminiscences from veteran horticulturists, pertaining to evolution and changes of horticulture and floriculture as seen by them, was begun in our Spring Number on March 19. The recollections of Mr. George, who is the subject of the present notice, go far back. He hardly looks his age, for the veteran has experienced the joys and the sorrows of eighty-two summers. To be exact, he was born in 1826, at Farringdon, Berkshire, a year which the horticultural journalist particularly recalls, since it was in that year that the father of our phase of journalism began his "Gardeners' Magazine." I refer to Loudon, whose periodical died with him in 1848.

Mr. George was cradled amid the flowers, his father being engaged in the nursery and market gardening business, and from his earliest days he evinced an ardent and tender regard for floriculture. Dahlias and Pansies were the two chief favourites of his youthful years; but perhaps it was Hobson's choice at that time, for these were the two specialties grown in the parental nursery-garden; and Mr. George, senior, achieved some renown as an exhibitor of Dahl's flower. These were doubles, of course, for the numerous breeds that enjoy increasing fame to-day, as singles, Anemone-flowered, Paeony-flowered, collarette, and even the cactus varieties, were not then even dreamed of. Nay, one ought not to say that; for our aged friend, with the fervour of the true old florist, brusquely informed our interviewer that "these sorts that are run after in these days were not looked at long ago; they were thrown on the rubbish heap." In other words, deviations from the rigid code of the florists received short shrift. The cactus Dahlia first came to notice in England in 1880, in which year the single Dahlia was again re-introduced; and the collarette forms sprang up in 1902, and the German decorative singles or Paeony-flowered were placed before a critical public three years ago. Mr. George, however, has "evolved" also, like the flowers, for his heart is gladdened with all the new forms of the various flowers; and it would probably be difficult at the present day to find more than a very few of the conservative, old-time type of florist.

As with the Dahlia, so with the Pansy. In 1826 and onward till nearly the middle of the nineteenth century, the show Pansy was supreme. Then came the fancy varieties, with colours more diversified and less formal. When Mr. George was about thirty years of age the race that we call Violas—some of which have their centres rayed, others being rayless, and whose flowers are seldom so large as those of the Pansies, and lacking their bizarre colouring—were only then being introduced. Much progress has taken place since then. An epitome of floricultural history might surely be written around the life of one who has lived through eighty years; but there are other flowers with which our veteran's name is more intimately associated, and upon these we must dwell.

Leaving the old nursery home, which was then dissolved, the young gardener became apprenticed to Mr. George Milne at Farringdon House, where he remained until a reduction in the establishment necessitated a move to another situation. Our friend was then nearing his majority, and having been all his days at gardening, we need not be surprised that the change of berth meant an upward move—in fact, to the top of the tree. He was engaged as head-gardener to the Hon. Mrs. Warnford, Warnford House, Southampton, in April, 1846, where he remained until February, 1850. In those days head gardenerships were secured earlier in life, by a long way, than they are to-day. On questioning Mr. George as to the reasons for this, he said it was simply because there were far more gardeners now, and that there was also an immensely greater number of gardening and allied subjects now to be mastered.

During his tenure of Warnford a change took place in the proprietary, when Sir Charles Wetherall succeeded Lady Warnford. Also in 1848, two years prior to his leaving, Mr. George became married, and in our own Diamond Jubilee year as a newspaper, we are much delighted to be able to congratulate Mr. and Mrs. George upon the attainment, next month, of their golden wedding. This veteran gardener does not talk politics, else could he have told us tales of several stirring times that are now fading into the background of "ancient" history. We are indeed more delighted to hear him tell us, not without pride, of having the superintendence of from twenty to thirty men, while he was still but a youth, in carrying out important scenic alterations in his first headship. Thirteen thousand (13,000) shrubs of different kinds, including forty varieties of *Cratægus*, were planted in this undertaking.

But another step onward was contemplated, and by the friendly aid of the brothers John and James Fraser, then

carrying on a nursery business at Lee Bridge, Mr. George, one year later, obtained another situation at Lee, near Blackheath, in Kent, remaining two years. Not yet feeling thoroughly comfortable, another application to his nurserymen friends obtained for him the superintendence of the gardens of Miss Nicholson at Stamford Hill, London, this now being 1853, at the time when our soldiers were leaving for the Crimea. Fourteen prosperous years were passed at this place, and Mr. George and his family also migrated with his employers, who now took up residence at Putney Heath, where a further term of sixteen years was happily spent. Altogether he was head gardener to the Nicholson's for thirty years. After that he started business on his own account in the same neighbourhood, where he and his two sons and daughter carry on a horticultural trade.

But during those thirty years at Stamford Hill and Putney Heath our veteran had accomplished some notable cross-breeding. Forty years ago the ribbon-border was a every-day feature in summer gardens. As an addition to the plants used therein, Mr. George thought that dwarf *Tropæolums* would surely be welcomed; and he was not mistaken. Having raised hundreds of seedlings from a stock of the tall-growing *Tropæolum Crystal Palace Gem*, a few were found to be dwarf, and by a process of selection, two were ultimately chosen, namely, *Tropæolum compactum coccineum*, and *T. c. aureum*, which were bushy, and grew only four to five inches high. One of the brothers Henderson introduced these. The Hendersons, of Wellington and Edgware Roads; Low's, of Clapton; Frasers', of Lee Bridge (for stove and greenhouse specimen plants); John and Charles Lee, Hammersmith; Fairbairn, of Clapham (for Heaths); and Osborn, of Fulham (for fruit trees), are the firms best remembered in the days to which we are referring.

Soon Mr. George turned his attention to the zonal *Pelargoniums*, which at that time were receiving a new and ardent appreciation from the floricultural world at large. Donald Beaton had obtained many novel colours from *Pelargonium zonale*, and our friend George bought some of these acquisitions and began crossing and selecting among them. The result was numerous certificated varieties, about 100 being actually given to the public. Henry Cannell introduced not a few; as also the late William Paul, the Lees, and a Mr. George Smith, of Hornsey. That other

great floriculturist and Grape raiser, Mr. J. Royston Pearson, of the Chilwell Nurseries, was contemporaneous in the work of improving the *Pelargonium*, along with whom must be associated the name of Dr. Denny, of Stoke Newington. Mr. Pearson, Mr. George, and perhaps others also, each annually sent a set of novelties to be tried in the old Chiswick Garden, and also to the London parks. Those were the days when the flowers of the free-flowering nosegay *Pelargoniums* were undergoing transition to a rounder, fuller, and larger form. A great *Pelargonium* Show was arranged by the short-lived *Pelargonium* Society in the year 1872. It was held in conjunction with one of the Royal Horticultural Society's exhibitions at South Kensington, and prizes were offered strictly for quality. The plants were to be shown in 6in pots, and if only one flower was expanded, provided it were thoroughly good, the prize would go to it rather than to another with twenty flowers, each of which lacked the merits of the one-flowered plant. Mr. George had a first-rate lot of seedlings, and though the competitions were for the best kinds which could be collected from all known sources, he preferred to try his luck with his own home-raised plants. What result? Immense success! He was first for the eighteen and the twelve zonals, and for eighteen and twelve hybrid zonals, and came second for the three specimen plants; on the top of all of which he won four first-class certificates. With reference to the *Pelargonium* Society, Mr. George informed the writer that this was instituted by Dr. Denny and Mr. Pearson.

Hybridising had already been attempted upon Ivy-leaved and zonal *Pelargoniums*, Mr. Wills, of the old Ashburnham Nurseries, Chelsea, and later of South Kensington, was first in the field, and from that source seeds were procured. The flowers of these hybrids were always single, but eventually from a Continental firm came the doubles. Mr. George, however,

quite independently got a double, out of which came the still well-known *Souvenir de Charles Turner*, which was figured by Mr. Moore at the time of its appearance. Very many crossings, however, were made before this progress or success was reached, for the early males or hybrids refused to breed, and so the worker was forced to go over and over the same ground.

The last genus that our friend subjected to his powers was the *Abutilon*. Folks may think there is small field for play here; but we, presumably, are only looking on the finished work. In 1883 he whom we discuss was reputed to have the finest collection in the world. The start appears to have been made between one called *Boulge de Nieve*, white, and an orange-flowered variety purchased at Veitch's. Numbers of seedlings were soon in evidence, and the presentation of a pink sort, named *roseum*, by B. S. Williams of Holloway, for which 7s. 6d. per plant was charged, immediately led Mr. George to a better appreciation of his own stock. His friend, Mr. Henry Parr, of Trent Park, where he still acts as gardener, chanced also to see the Putney Heath seedlings, and assured the raiser that he was far ahead of any rivals. And so the work was more ardently pursued, and year by year certificates were obtained, and novelties were eagerly sought for by the vendors. Mr. George thinks he imported the rich scarlet colours into his flowers through using *Hibiscus sinensis* as the pollen parent. For a long time the possibility of hybridising the *Hibiscus* and *Abutilon* was doubted, but among other authorities, the late Dr. Masters finally agreed that it had been truly accomplished.

As an exhibitor and judge Mr. George has more incidents to relate than we have space to relate them in; but he and Mr. James Douglas are old friends in this direction. Our veteran is also the oldest living member of the National Chrysanthemum Society, a fact which the officials surely do not know, else would they accord him honour. But in one way or another he has exhibited at their shows for nearly fifty years. Forty-eight years ago he won two beautiful silver cups for specimen Chrysanthemums at the Manor House, Stoke Newington, and these trophies are to be seen on his drawing-room mantelpiece. He well remembers Fortune's Japanese Chrysanthemums, then introduced from the East, with thread-like petals, very scanty

and thin, forming bedraggled floral clusters at the top of long sticks, 7ft to 8ft high.

The officers and members of the United Horticultural Benefit and Provident Society will also like to know that he of whom we write was an active originator of this sick pay club. A Mr. Heale, then at Low's, was the first "upon the books," when it was started at Stoke Newington. Then it was resolved to raise sufficient funds to give the movement a good start. For this purpose the Lord Mayor of London was approached, and with the late Shirley Hibberd, Mr. William Marshall, V.M.H., and others, a great and successful flower show was held in the Guildhall, at which £300 were cleared. Another show was held, and no prizes were offered, but in recognition of his help in sending Chrysanthemums, Mr. George was awarded a handsome timepiece, which stands between the cups just mentioned.

Now we come to the concluding lines of our notice. After leaving his gardenership, some twenty-five years ago, he set himself the task of developing a business in horticultural sundries. He had had a friend who, as a chemist, patented a nicotine fumigator and a preparation known as tobacco tissue, but this was costly. Mr. George early perceived the value of tobacco-paper for this purpose, and immediately set himself to procure quantities for sale. He continued to develop his business until the introduction of the vaporisers now in general use led to a great reduction in the old-fashioned materials. In 1890, when Messrs. Gardner and Smithson placed their nicotine fumigator before the public, our friend accepted the London agency, and found the preparation one of the best and cheapest in the market. Although originally confining his attention mainly to preparations for the destruction of insects, Mr. George soon developed other lines, such as manures, Mushroom spawn, pea &c., and in these he still enacts an extensive business. Mushroom spawn is now one of his specialties, and



Mr. J. George.

it is worthy of note that to one firm alone, the Scottish Mushroom Co., Ltd., he has sold 16,000 bushels. To him also we are indebted for the introduction of wood-wool. This he has been selling for nineteen years. At first it was cut from red deal, but latterly the white Aspen was employed. Mr. George brought this wood-wool before the Royal Horticultural Society's Fruit Committee, who asked Mr. Wythes to pack a boxful of Strawberries with it and send it to the committee by carrier to test its merits as a packing material, also to see if it in any way tainted the fruit. It proved highly satisfactory, and received the committee's commendation.

One has not talked long with Mr. George ere one perceives that just as in the floricultural business, so also in his, there has been an onward march, and old things give place to new. Even in horticultural sundries there is keen competition, and the business requires the most acute care and foresight. Mr. George, in his eighty-second year, is still in harness, but he is ably assisted by his two sons, and we may conclude by wishing him "a fair field and no favour"; and that he may be spared many years to relate his reminiscences of former days.

Out-door Tomatoes.

Tomatoes are generally considered a very precarious crop, but, with a little care and foresight, they need not be much more so than ordinary crops of wall fruit. It is a common thing to see them making rampant growth all through the summer, and all, or most, of the blossom dropping off, or failing to set until June or even July is well advanced, with the result that no ripe fruit is obtained until the middle of September, after which, unless the season is very favourable indeed, the fruit does not arrive at its full flavour. Having grown them in the open for many years, and having bought some of my experience at the price of repeated failures, I propose to set forth a few of the principles of the successful culture of the Tomato outdoors, assuming for the purpose of these notes that a wall or fence of some sort is available for their support. The latter is not really necessary to a fair degree of success in a favourable season, but its absence adds very much to the precariousness of the crop.

PREPARATION OF THE SOIL—

is that upon which, perhaps, more than upon anything else, success or failure depends. It is a delusion to suppose that a poor soil is necessary in order to get them to set early and freely, and large crops of fine fruit are rarely obtained under such conditions. Though the soil should be fairly good, it is better not to apply any animal manure when preparing the ground, as it prevents that firmness of the soil which is so necessary, besides conducing to leafy growth. If the soil is prepared in the autumn or winter (and this is the best time) basic slag should then be added at the rate of 5lb to twenty square yards, unless the soil is chalky, sandy, or gravelly, when half this amount of bonemeal would be better, this being supplemented by a similar amount of twenty-six per cent. superphosphate of lime in the early Spring. In addition to these dressings, whatever the soil, bonfire ashes could scarcely be used to better purpose. The soil should be made firm at the time of planting without being kneaded, firmness of soil encouraging a short-jointed and fruitful growth from the beginning, by checking the natural tendency of this plant to too greedy rooting. In a general way it is not safe to plant out, even in the southern counties, before the twenty-fourth of May, and even after that they may need protection on one or two nights, as they never recover their full vigour after a chill, a fact which makes the raising of them by an amateur in a cold house so risky.

THE SETTING OF THE FRUIT—

is the next thing to be anxiously looked for. Given a well-prepared and firm soil in a sunny position, with plenty of air space, no difficulty should be experienced. Plants sometimes fail to set their blossom from want of moisture, especially against a wall or fence, and they should be looked after in this respect and kept damp enough to permit of unchecked growth, without undue luxuriance. As an aid to this, a mulch of light strawy manure should be put round the plants. All side-shoots should be pinched out, and such pieces of leaves—never whole ones—removed as may be necessary to insure free access of sun and air to all the foliage remaining on the plants. Some brush the blossoms with a camel-hair brush to assist the setting of the blossom, but the anthers are curious as regards pollen, and I have never been sure that much good has resulted from this operation when conducted in the open. All growers will have observed that the five stamens are united together to form a sort of pent-house round the pistil, and it has been recommended to take the smallest blade of a pen-knife and just slit this open. It may seem tedious, but after a few have been done and dexterity acquired, fifty flowers can be done in a few minutes. I have been inclined to attribute better results to this than to the use of the camel's-hair brush, but neither need, or

should, be resorted to if the blossom starts setting freely. When two or three trusses of fruit have set on each plant, so that the growth has become well balanced by the natural exuberant energy of the plant being absorbed in, or diverted to, the production of fruit,

THE FEEDING OF THE PLANTS—

is the next thing to claim attention. A variety of substances may be used for this purpose, but there is nothing to beat a sprinkling of a rich nitrogenous guano round the plants at the rate of not more than an ounce to the square yard, this being afterwards well watered in. This may be repeated in a fortnight or so, or alternated with the same amount of nitrate of soda or sulphate of ammonia. The result will soon be seen in the rapidly swelling fruit. With a favourable season, and good success otherwise, the earliest fruits should be turning by the middle of July, and ready to gather by the end of the month, and here it should be said that those who gather Tomatoes as soon as they are red, do not give them the opportunity to acquire their full richness of flavour. Another week or a fortnight in a dull and cold season, is the least that they should be allowed to hang after they have turned red. After the first week in August all unopened buds should be picked off, and no more allowed to form, and after the middle of the month the feeding of the plants may be discontinued, as

THE RIPENING OF THE FRUIT—

is now the principal consideration, and this is delayed both by luxuriance of growth and by dampness of soil. We must now sacrifice any increased size of fruit we might obtain in favour of early ripening. If September turns out to be wet, following upon a dry summer, the result is often the wholesale splitting of the fruit, both ripe and green, which is very disappointing. The great thing is to keep the soil dry, and, if possible, the fruit also. The best plan is to set up frame sashes in front of the wall, thus keeping both fruit and roots dry, and the next best thing is to arrange boards to shoot the wet from the roots. The sashes have the further recommendation of keeping off any premature frosts, allowing the fruit to keep on the plants till the end of October, and sometimes later. But if these are not available, coverings should be kept in readiness to hang over them on the first frosty night, a week or two of genial weather often following a disastrous night in early October. If the weather continues damp, and the fruit is inclined to split, it should be picked as soon as it is beginning to turn, and be laid in a warm place, putting it away in a fireside cupboard, in a basket with hay or flannel.

When by reason of wet or cold, or a general breaking up of genial weather, the outdoor Tomato season is obviously over, the plants should be pulled up and be hung up by the roots in a greenhouse or summer house, when the unripened fruits will continue to ripen for another month or more. Though such fruits will not be of good enough flavour for use in the raw state, they will be by no means unwelcome for cooking, and may, if the autumn has been a favourable one, be kept in use till after Christmas.—A. FERRIS.

Diseases of Plants.

Liming the Land and its Effects.

On Saturday afternoon last, Mr. Walter E. Collinge, M.Sc., F.L.S., F.E.S., Director of the Cooper Research Laboratory, Berkhamstead, lectured before the Warwickshire Chamber of Agriculture on "The Use of Lime in Agriculture, with Special Reference to its Application to Finger-and-toe Disease in Turnips, &c." Mr. Collinge first pointed out the antiquity of the practice, and how it had gradually fallen into disuse during the latter half of the nineteenth century. After describing the chemical nature of lime, as understood and required by the agriculturist, he very fully treated of its manurial, chemical, physical, and biological action on the soil and soil organisms. Full details were given of how and when to apply it, and the kind of land most likely to benefit from it, and where and when it was likely to prove injurious. Turning next to its relationship to plant disease, the lecturer pointed out the favourable action lime had upon the Potato-scab disease, possibly due to the alkalinity of the soil. Finger-and-toe disease was fully described, and résumé of the work that had been carried out in recent years by Professor Gilchrist and the Armstrong College staff at Cockle Park Farm. This excellent series of experiments Mr. Collinge spoke most highly of, and stated that agriculturists generally were under a great debt for the very thorough and patient work there instituted, and so successfully carried out. There was no doubt any longer as to the influence of lime upon the last mentioned disease: indeed, up to the present time, liming was the only method that had given any reasonable success. In conclusion, the lecturer pointed out that a series of experiments with a combination of lime, followed by a dressing of sulphur, might possibly give much better results than had yet been obtained.



Edgeworthia chrysantha.

This shrub is seldom met with in private collections. Its beautiful waxy yellow flowers change to white, and they appear during the winter and early spring months. They have also a pleasing fragrance. If planted out in a cool house, along with the *Daphne*, these will brighten the dull season of the year. Now is the best time to propagate by cuttings, which, if taken with a heel of the old wood, and inserted singly into small thumb pots filled with silver sand or coarse river sand, will root readily. It is essential that the pots should be without drainage holes. Plunge in a close propagating frame, with moderate bottom heat, and water copiously twice daily. The cuttings will emit roots in about three weeks time. Shade them from bright sunshine. The same treatment applies to the propagation of the *Daphne* and *Luculia gratissima*.—WM. H. JENKINS, Northenden, Cheshire.

Attending to Hedges.

Loudon, writing about gardening eighty years ago, remarked that a good many persons did not pay proper attention to their hedges. I am afraid, were he alive and taking a look round now, he would not find the improvement he might expect. There is so much to do in a garden, that its environing hedges, if it has them, are apt to be neglected, and a yearly rather careless clipping is all the treatment a hedgerow gets. A great defect, as he remarks, in many hedges is that they are not at the outset made of sufficient thickness, therefore are less able to resist the force of high winds. Hedges ought to be sometimes examined for caterpillars, any dead or contorted twigs removed. In a dry season they would also be assisted if a little water was afforded them. Now and then it is desirable to fill up gaps by putting in new plants. It is pleasant to find that in some of the new garden cities it is proposed, as far as possible, to have dividing hedgerows instead of brick walls or fences.—J. R. S. C.

Rose, Joseph Lowe.

This beautiful sport from the well-known Mrs. W. J. Grant bids fair to rival that grand Rose as a forcing variety. During the last few weeks there have been shown some splendid blossoms that have all the charm of a Mme. Abel Chatenay in their colouring, but with a much freer habit of flowering during the dull days of winter. When cut, it would be difficult to distinguish Joseph Lowe from Mme. Abel Chatenay, especially in the bud state, but it retains the habit of Mrs. W. J. Grant, and also its fine form to a considerable extent. In a cool season Joseph Lowe will be valuable to the exhibitor, for where is there a box of blooms put up but what contains a specimen of Mrs. W. J. Grant? I believe (says "Rosa" in "Gardening") Joseph Lowe will prove to be equally as useful, and if it but maintains its good qualities outdoors, I think exhibitors will have a useful addition to their collection. The strong point of Joseph Lowe is its suitability for early forcing. There are not many Roses that can be called "good" for such a purpose. One cannot "force" Mme. Abel Chatenay very early, but when it does come in there is then no room for Joseph Lowe, because it not only is perfect in colour, but its splendid long stems render it invaluable for vases and other decorative work. The raisers of Joseph Lowe think so highly of this Rose that they have planted several houses of it specially for the out bloom, and if one would see what a Rose is capable of this is the way to test it. Prepare a good deep root-run, with half-inch bones placed in the bottom layer of soil, and mulch the surface with some well-decayed manure. Plants thus treated, and hard pruned each season, are a source of both profit and pleasure to the owner, the lusty vigour testifying to the care with which the soil has been prepared.

Ridge Cucumbers.

These are very useful for pickling as well as for ordinary table use, and the ground should be prepared for the plants forthwith. If space be restricted, you may grow these Cucumbers between the rows of Gooseberry trees. Do not dig up the ordinary soil to interfere with the roots of the trees, but place some heaps of good, rich compost between the rows, and, in due time, put out the Cucumber plants. Chopped turves, leaf soil, and rotted manure should be used; it may be spread over the ground when the Cucumbers are all gathered at the end of the summer.

Popularity of Pyramidal Plants.

Those who sell trees and shrubs find a greatly increased demand for pyramidal forms of trees and shrubs, both of the evergreen and deciduous kinds. In the line of evergreens hardly a kind can be named that is not called for. It is especially notable in the case of evergreen Box, Yew, Retinosporas, and like sorts. Not only pyramidal kinds, but those of standard appearance as well are selling well, both in the evergreen and the deciduous line. While agreeing with those who think a natural growing tree or shrub is the most pleasing of all shapes, those of formal contour are much in place near buildings, pathways, and similar positions. Where formal gardens are, it is often necessary that the shape of the trees and shrubs should fit the design intended; and every year sees more elaborate gardens of this description formed than before. Besides their use in the places suggested, a pyramidal-shaped tree, especially of an evergreen nature, adds to the beauty of a whole collection of trees and shrubs by contrast. The ease with which these nice evergreens can be imported deters those from growing them who otherwise might do it, as other fields of work are open to them which pay them better.—("Florists' Exchange.")

Plants in Flower at Glasnevin.

In common with other districts, a severe storm of frost and snow occurred in Dublin towards the end of April. Daffodils in full flower were bent to the grass by the weight of snow. Magnolia flowers were blackened and ruined for this year, while the young leaves of Gunneras, Rodgersias, some *Pæonias*, and the like, were badly injured. With the somewhat brighter conditions of the last week or so many plants have come into flower. Garden Tulips of the later sections are now beginning to make a display in succession to the species which are now fading, and for some weeks to come Spring bedding will make a show, given reasonable weather. Among others the following have come into flower since the last list appeared:—*Arabis Sturri*, *Arenarias balearica* and *montana*, *Aubrietias* in many varieties, *Æthionema iberidifolia*, *Anemone alba*, *Bryanthus taxifolius*, *Cheiranthus Allioni*, *Celmisia grandiflora*, *Corydalis ophiocarpa*, *Caltha polypetala*, *Caltha radicans*, *Draba dicranoides*, *D. ciliata*, *Euphorbia epithymoides*, *Fritillaria imperialis*, *F. Meleagris*, *F. lutea*, *F. nigra*, *F. pyrenaica*, *Heloniopsis breviscapa*, *Hyocyamus orientalis* (syn. *Physoclaina*), *Iris caucasica*, *bucharica*, *Fosteriana*, *pumila* and vars., *tuberosa*, and *pseudo-pumila*. *Linum alpinum*, *Muscari Heldreichi*, *botryoides album*, *mutanthum*, and *latifolium*. *Meconopsis integrifolia*, *Phlox subulata* and vars., *Pulmonaria arvernensis alba*, *Primulas involucrata*, *Veitchi*, *Auricula monacensis*, *apennina*, and *pulverulenta*. *Pæonia Cambessedesi* from Marjorca, *Ranunculus gramineus*, *Scilla bifolia rosea*, *Ranunculus Thora*, *Scilla amœna*, *Sedum roseum linifolium aurantiacum*, *Trillium sessile*, *T. sessile californicum*, *T. grandiflorum*, *Trollius Orangeman*, *T. Goldsmith*, *T. Newry Giant*; *Veronica cuneifolia*, *V. canterburyensis*, *Vesicaria reticulata*, and *Waldesteinia trifolia*. SHRUBS: *Cytisus biflorus*, *Kewensis*, *Beani*, *monspessulanus*, and *hirsutus hirsutissimus*; *Genista pilosa*, *G. anglica*, *Cassiope tetragona*, *Spiræa arguta*, *Prunus incana*, *P. pseudo-Cerasus*, *P. Avium*, &c. *Pyrus salicifolia*, *P. eleagri-folia*, *P. prunifolia*, *Piptanthus nepalensis*, *Pyrus Malus floribunda*, *Berberis* in several hybrids and species, *Amelanchier canadensis*, *Ceanothus rigidus*, and other things.—J. W. BESANT.



"French Gardening."

The writers in certain of the daily papers who are guilty of so much fuss, and whose misleading statements may lead people who "do not know" to put their money in intensive cultures, or what they are pleased to call French gardening, ought to be rather more guarded in their statements. With an enthusiasm, which might be turned to better account, certain individuals are endeavouring to exploit this system as though it were something quite new and wholly profitable. Has no one ever heard of the private gardener's methods of frame cultures? He will take a crop of early Radishes, followed by Potatoes; these in turn by Cucumbers or Melons, and all from the same frame, and may end up the season by securing a crop of Violets from the same bed. We doubt if a Frenchman could show a much better record than the above. Frequently the Potatoes may be varied by a crop of Dwarf Beans instead. Such exclamatory headlines as "Golden Soil" may serve a purpose in calling attention to the land and the many questions involved; but however easy it may be to write and talk of £600 of produce per acre, let none run away with the idea that this is all profit. The frames must be bought; manure, and more manure, and still more manure, must be obtained, and the labour bill is a very heavy item. We should not be ready to accept the statement that £600 per acre has been realised without direct proof. But even allowing this much, the expenditure in every direction is very heavy, and utterly out of reach of most of our small holders. It should also be remembered that the demand for winter and early salads and similar produce is only limited. An old salesman, speaking on the subject the other day, said, "There are many days when, if we received half a dozen baskets of Lettuces, we could sell very well, but if a dozen were sent we should most probably have half a dozen left on our hands for the next day." It is just as well to look facts in the face and to realise the limits of our home markets for these early salads and vegetables, rather than be led to misfortune and misery by the high-falutin' of some ignorant scribe.—GROWER.

Fruit Prospects.

It is now possible to give a fairly accurate estimate of the amount of damage done by the recent wintry weather, and it is gratifying to be able to state that the alarmist reports published in certain sections of the Press were altogether unwarranted. After having made a close inspection of many fruit plantations and gardens in Warwickshire, I am convinced that fruit prospects generally are exceptionally good, although a considerable amount of damage has been done to bush fruits. Gooseberries have suffered most severely. In exposed positions quite one-half of the embryo berries have been destroyed; but in some sheltered gardens very little harm has been done. Red Currants have suffered severely, and the racemes will be ragged owing to the dropping of the flowers or young fruits. Where Black Currants were in full flower at the time of the frost and snow, they, too, have shed a large proportion of their flowers; but where the blossom had not expanded, only an infinitesimal amount of damage has been done, and the crop promises to be a heavy one. Plums and Pears are in a highly satisfactory condition. What few flowers were injured simply had the effect of doing a little of the necessary thinning, which will be greatly to the advantage of those left. These have set splendidly, and the fruits are now swelling freely. Apples at present promise to be one of the great crops of the season, as the blossom is late—almost too late to be seriously injured by May frosts. Nearly all varieties seem to be showing abundance of blossom buds.

Another noticeable and satisfactory point about fruit trees generally is their healthy appearance, and comparative freedom from insect pests. The copious rains and snow, followed by the present favourable climatic conditions, have doubtless had much to do with their present satisfactory condition. I think, however, that due credit should be given to the value of the excellent insecticides now on the market, which have been very extensively used during the past winter and spring months.—H. D.

There is much fine Apple bloom just opening, and it looks healthy and vigorous on most varieties. Ecklinville is the exception. On this variety there are few blooms, and the trees

are unhealthy. The severe weather last spring greatly damaged them. Plums are setting well, and there is promise of a good crop. Pears also promise well. Bush fruit is variable; some varieties of Red and Black Currants have been caught by the frosts of last month. Boskoop Giant is exceptionally heavy in fruit. It is the Black Currant—vigorous and healthy in growth, and the fruit fine. I am sorry to say the Gooseberries have suffered most from the frost, and there will not be half the crop that would have been. In some gardens the whole of the crop is lost. Strawberries look well. I hope we get good weather, and then I think the prospects of a good fruit year are rosy.—L. F. D.

Apples and County Councils.

I have read with great interest the article on "Cross-fertilising Apples" from the pen of Mr. G. Abbey, and I thoroughly agree with him that there is yet much to be done in the direction of raising improved varieties which shall give supremacy to British-grown fruits. "Who," asks Mr. Abbey, "is to do the work?" and then instead of answering the query, throws out a veiled suggestion that it might be carried out in the fruit stations established by the various county councils. So far there is not much to complain of in Mr. Abbey's remarks, but I cannot help thinking he is not very well informed on the subject when he asks, "Where are the results of their instruction seen?" and again, "There are but few results for the money expended on educating the rustics by county councils." Mr. Abbey, I fancy, takes a somewhat doleful view of the matter through not travelling beyond the confines of his own particular district. If he were to see some of the fruit stations he writes so disparagingly of, he would, I am sure, in common fairness, admit that they have been the means of accomplishing much good work, and that they have beyond all question yielded some fruit of a tangible nature. If Mr. Abbey could see the great interest which is being taken in fruit culture throughout the country generally, interest which has to a great extent been created and fostered by the county councils, if he could see the numbers who visit the various county fruit stations with the object of selecting suitable varieties and of noting methods of culture, he would, I am sure, modify his opinion that "but few results have been obtained for the money expended." In regard to the decrepit trees and scabbed fruits, we all admit they are still too frequently seen, but vast improvements are in progress. Although old trees are neglected, thousands upon thousands of young ones are each year being planted, and are receiving infinitely better treatment than the old ones ever received. Yes, splendid work has already been done by the county councils, and much more is being planned for the future. Rome was not built in a day; neither will fruit-growing be revolutionised in a year. A well-equipped national fruit station is one of the things urgently required to assist fruit growers still further.—POMONA.

Cross-fertilising Apples.

In my article on this subject on page 444, fourth line from bottom, second column, I have inadvertently named Dr. Harvey instead of Golden Harvey, this, not the former, being the seed-bearer in question.—G. ABBEY.

Mr. Abbey raises several questions that might be discussed with advantage in the article on Apples, page 444. Golden Pippin, strange as it may appear, is still considered by some Apple-eaters as one of the best-flavoured varieties, and that there is more than one form is firmly believed. Forsyth's opinion was that there were many varieties, and a gardener has pointed out to me two varieties growing in the same garden. But then I have seen two so-called varieties of Ribston Pippin, and as many of King of the Pippins. Long, long ago, Dr. Beale remarked on the effect that soil, exposure, and climate exerted on the Apple, and not improbably it is on that account that people have been deceived with old well-known varieties which have been distributed as novelties.

The Golden Pippin of Parkinson is probably not that variety at all. It is delineated as "curtipendulum"—"short hanging," or "short-start," as an earlier writer calls it—and is synonymous with "Court Pendu," of which there were at least three varieties. Of these I have two. Undoubtedly the Golden Pippin was largely cultivated for cider making, especially in the south and south-eastern counties. In the west a different and harsher quality of fruit was desiderated, and it would almost seem that the method of increasing Apple trees consisted in sowing seeds of selected fruits, and again selecting the seedlings by the appearance of the foliage. The trees were planted in hedgerows, and by the sides of roads, as well as in orchards. Apples do not appear to have been largely eaten raw, and I think it was Ralph Austen who advised them to be eaten with carraways to obviate "windiness!"—R. P. B.

Forestry.

Afforestation in France.

A French correspondent of the "Times" states that the members of the British societies for the preservation of familiar sites hallowed by association or notable for their æsthetic charm, will learn with satisfaction that French public opinion is becoming keenly alive to the urgent necessity of watching over the great forest domains that still survive from the old Gallo-Roman and Merovingian past. The French Administration has done all in its power to dry-nurse the saplings it has planted yearly all over France, and to submit its own State forests to a tender scientific treatment. But even in centralised France the State is not master of everything, and the French forests have enemies over whom the Ministry of Agriculture has no control. Save here and there at scattered intervals, the general public had for some time ignored the danger. But little by little, it has become a matter of common knowledge that the deforestation of the country was proceeding at an ominous rate—how rapidly became every spring and autumn only too patent, when the Chamber of Deputies was regularly called upon to vote from £40,000 to £400,000 in aid of populations in the Cevennes, in the Pyrenees, or at a score of localities in the central *massif*, victims of inundations due almost entirely to the reckless destruction of the woods on the heights.

In order to deal with the difficulty a vast society was formed called "L'œuvre de l'arbre." Parliament and the Minister of Agriculture, finally, with public opinion at their back, undertook the reform of the existing legislation, in which the State and the public interest are at present at the mercy of the communes. In short, so widespread was the agitation, that when it became known that it was not only Frenchmen, but foreigners, who were devastating France, much as the Arabs devastated Spain, the news provoked almost a scandal. Wild rumours, indeed, were circulated as to the sale of the historic woods of Amboise and of Eu to a German company. The report made all the more commotion, as the Germans had already managed to obtain possession of some of the fine old French forests in the east of France, and of the splendid woods of Marchenoir in the Loiret-Cher. The forest of Amboise, which belongs to the heirs of the Orleans family, is indeed for sale. But the latest information is to the effect that the purchasers are to be Frenchmen, who, in the words of M. Ruau, will exploit it *en bons pères de famille*.

It is not, however, the destruction of this or that wood in which France may take an interest for sentimental reasons which gives importance to the present problem of afforestation. The disastrous floods in the Midi, and even in the river system leading out of the Burgundy hills, have shown that the problem is a national one, justifying the revision of the forest regulations so as to arm the Administration against wanton felling of the woods. The new Bill, while safeguarding the rights of proprietors, restores the conservative rights of the State. When one recalls what the State has already accomplished in the Gascony Landes there is reason for the sturdiest optimism as to the future of French afforestation.

Floral Decorations.

Decorated Azaleas.

A little time and money spent on decorating Azaleas pays well. A customer will often pass by well-grown and well-flowered plants, and pay little attention to them, but the same party will take an interest in plants when coloured mat, chiffon, ribbon, or sprays of *Asparagus Sprengeri* are tastefully associated with them. In the matter of blending or contrasting the colours of ribbons and flowers there is scope for much originality and taste. The plants may be improved with very little trouble or expense.

In Brooks's, Regent Street, London, last week, there was a beautiful wreath, done in double-bloomed purple-heliotrope *Rhododendrons* (packed upon the frame,) and bouquets, poised on opposite sides, composed of (1) *Cattleya Schröderæ*, *Odontoglossums crispum*, large white *Caladium* leaves and *Lilies* of the Valley; and (2) white "K. A. V." *Roses*, the latter being the lower bouquet.

A cushion was made of *Rhododendrons* as per above; with bouquets right and left, made of *Odontoglossums crispum*, *Lilies* of the Valley, and *Caladium argyrites*. But the most gorgeous arrangement was a basket filled with golden, and crimson *Ranunculuses*, also fourteen splendid flowers of *Calla Elliottiana*, yellow Dijon *Roses*, sprays of *Cymbidium Lowianum*, and long trails of *Asparagus Sprengeri*. The basket was wrapped round with broad yellow ribbon, having huge bows at the back. This was of a colour somewhat deeper than the *Roses*.

Hardy Plant Notes.

The Propagation of *Anemone japonica*.

Now that there are so many beautiful varieties of the Japanese *Anemone* available for the garden, it would be well for those who have hitherto cultivated only the older ones to endeavour to secure a stock of some of the improved varieties, although one must admit that a good form of *Anemone japonica alba* is in itself hard to beat. Yet in the other colours there are now some lovely things, and some of the semi-double whites are very beautiful indeed. In order to raise a stock of these newer varieties in a short time, and at little cost, it is necessary to propagate them by means of root cuttings, and a few of these can as easily be raised in a pot as a large number in a frame.

Propagation by root cuttings can be performed at any time when the roots are at rest, and a few good roots will produce quite a number of cuttings. The plants should be lifted as free from injury to the roots as possible, and the roots cut into lengths of about an inch with a sharp knife. The thinnest and weakest roots should not be employed, but those of about the thickness of a quill or more are excellent for our purpose. Each piece of root will produce a plant, and it is thus evident that a good specimen will give a large number of young plants if treated in a proper way. After cutting the roots up in lengths, they should be placed thickly together in pots, pans, or boxes, in sandy soil, either laid on their sides or set in the soil with the thickest part of the root uppermost, and then just covered with fine soil, and then well watered to settle it about the cuttings.

Although no heat is necessary, a gentle temperature with a little bottom heat will start the plants more quickly, and thus ensure stronger specimens for the following autumn. When a little top growth has been made, and the plants show signs of making rootlets, they may be potted off singly or transferred to a cold frame, and then gradually hardened off, and planted out when they have become established. When the soil about the roots in the transplanting is of a good character, i.e., is rather light and sandy, the plants may be lifted with some soil attached by watering before lifting, and thus they will receive little check, even if dry weather should follow planting out. Even those who have no glass can raise root cuttings of *Anemone japonica* by putting them in pots and keeping these in a warm room or the kitchen, but care must then be taken in hardening the young plants off. A still simpler method is to raise plants by putting the root cuttings in shallow drills of about an inch deep, and then covering them up with some fine, light soil, and watering this down close to the pieces of root. The young plants produced, although smaller for a time, will be sturdy and healthy, and will soon make up on their more carefully-tended neighbours.—S. MEAD.

Anemone sulphurea.

For flowering at the end of May or early in June, this is quite one of the best of the genus. The blooms are 2in in diameter, sulphur yellow in colour, with anthers deeper in tint, making a pleasing contrast. For cutting with its own foliage this plant deserves more attention than it receives at present.

Anemone narcissiflora.

This lovely plant grows 1ft high, under reasonable treatment, and produces its flower spikes freely, each terminating with a cluster of from three to five pure white blossoms, with deeply cut leaves. For cutting, this *Anemone* is distinctly valuable, and for this reason deserves more encouragement than it at present receives.—E. M.

Anchusa italica.

For the purposes of this note we will suppose a western aspect, and in no part overhung with trees. There is the comparatively new *Anchusa italica*, known as *Dropmore variety*. Now this plant is capital for heavy clay soil, and in general effectiveness is a great improvement on the older form, for the flowers are considerably larger, and the whole type of the plant, if I may say so, seems improved. So far, seed is rather scarce, and not always quite true; but I note that one firm is offering, when the supply it has of seed runs short, to send four young plants in the place of the shilling packet—a good idea it seems to me, and worth taking advantage of by those who would like to have the plants in flower during the coming summer.

Notices of Books.

PANSIES AND VIOLETS, by D. B. Crane; illustrated. London: W. H. and L. Collingridge, 148, Aldersgate Street, E.C. Price 1s. net.

This is a handbook dealing with the cultivation and propagation of the show, fancy, or tufted (hybrid) Pansy or Viola, for garden decoration and for exhibition. The Violettas or miniature flowered Pansies and mountain and sweet Violets are also included, while chapters are devoted to enemies of Pansies and Violets, and the little volume concludes with selections of varieties for all purposes. Mr. T. W. Sanders, F.L.S., as editor of the book, has prefixed a chapter on the history and the botany of the Pansy and Violet, which adds considerably to its value.

Among the dwarf flowers, these plants, as everybody is ready to admit, occupy a foremost place. Perhaps if a plebiscite could be arranged, it would be found that Pansies, Violas, and Violets, as a general class, were the most favoured of all dwarf spring and summer flowers. Their merits are being annually more and more appreciated, and the effective exhibitions of them in the best class parks and gardens and at the flower shows, together with more recent literature devoted to them, have all tended to increase our knowledge of the best kinds and how to employ them.

The Violettas are still but little known. They are an exquisite race, said to have resulted from crossing the Blue King bedding Pansy with the Horned Violet (*Viola cornuta*), and were introduced by the late Dr. Charles Stuart, of Chirnside, Berwickshire. For small gardens they will undoubtedly become great favourites: they are so compact and so free flowering.

Exception is taken to the well-known garden name, *Viola*. A certain school of gardeners have begun to upset even garden nomenclature by calling them "tufted Pansies," a hideous appellation, even if it were deserved. Mr. Sanders would like to see them called "hybrid Pansies," or thinks, at any rate, that this would be more appropriate. We, at least, think *Viola* good enough, and quite understandable. Violas, as a race, "have been derived from crosses between the show Pansy and one or more species of *Viola*, the original cross being *Viola cornuta* and a show Pansy, upwards of forty years ago." Great improvements have been effected during the last twenty years. In this improvement, Mr. Crane, and latterly his son, Mr. Howard Crane, have each admirably assisted, and no one is better qualified to tender advice either about their cultivation or the selection of varieties. We wish and hope that some of the newer small-holders, or market-gardeners in favoured localities, could be induced to try Violet cultivation for profit. By following the details given in this book success should reward their efforts, and the day is certainly coming when foreign flowers will be taxed upon entering our ports. A chapter on Violets in pots is also added, and in all respects we find this a most serviceable and complete book.

HARDY ORNAMENTAL FLOWERING TREES AND SHRUBS, by Mr. A. D. Webster; third edition. London: Smith, Elder and Co., 15, Waterloo Place. Price 3s. 6d. net.

For quite a number of years there was no book of a handy character, good, cheap, and reliable, describing the best ornamental flowering trees and shrubs, except this one by Mr. Webster. Even to-day they are far from numerous.

This third edition of "Webster" extends to 233 pages, of a size 8in by 5in. There are no illustrations, and the methods of how to propagate, prune, or utilise the subjects herein named are very scanty. In these respects we think Mr. Webster might have done better. In his preface he says that several useful chapters regarding shrubs are added, including propagation, but we fail to discover the references to the latter. We commend the book on its undoubted merits as a reference work and guide to species particularly, and to the choicer varieties. Its lists and descriptions are complete. The natural order, native country, and date of introduction of the species are given; also the English names of the subjects, and any synonymy that exists. An excellent index is furnished, even though the genera are alphabetically arranged. The book is well adapted to the needs of gardeners, and the study of ornamental flowering trees and shrubs nowadays is demanding and receiving closer attention.

VEGETABLES FOR HOME AND EXHIBITION, with chapters on soil preparation, crop rotation, tools, preparing and exhibiting vegetables, a monthly calendar of kitchen garden work, and numerous illustrations of vegetables, vegetable exhibits, and growing crops; by Mr. Edwin Beckett, V.M.H. London: Simpkin, Marshall, Hamilton, Kent and Co., Ltd. Price 5s. net.

There are certainly no lack of books on culinary vegetable cultivation, and yet the subject does not appear to be overdone. The importance of the subject undoubtedly is the reason. In open-air flower gardening, if a crop fails or does not fulfil all

expectations, somehow or other the failure is not looked upon with the same sense of loss, nor is the grower taxed with inability to the same extent that he would be if he allowed a vegetable garden to collapse. And even admitting this, the vegetable garden has never yet been accorded the dignity of its position in domestic or estate economy. "No part of a gardener's duties," says Mr. Beckett in his preface, "calls for more skill, care, and forethought than the regular cropping of the kitchen garden." Perhaps its very onerousness is the reason why there are so comparatively few first class growers of vegetables. Mr. Beckett may be regarded as the pioneer of artistic vegetable exhibiting, and no one has won higher honours, nor so many of them, for cultural skill, than he. As he never does anything by halves, so into this book he has incorporated the best that he knows about its subject. We do not suppose that "the champion" means to quit the exhibition arena just yet; but he has won his laurels, and this book can be regarded as a cap-stone to them.

We like the tabular data form that has been adopted with regard to each of the vegetables. Thus in the first entry under "Vegetables and Their Cultivation," we have—

Chinese Artichokes.

NAME	<i>Stachya tuberosa</i> .
HABITAT	China and Japan.
DATE OF INTRODUCTION	1897.
CHARACTER	Herbaceous perennial.
PROPAGATION	By seeds and tubers.
TIME TO PLANT	End of March.
EDIBLE PORTION	Root tubers.
WHEN IN SEASON	All the winter.

Each vegetable is treated in the same way, so that the reader has an epitome of the antecedents and character of the plant. The date of introduction, we should have thought, is too uncertain in many cases to have been included; but the author gets over that by stating the nearest authentic date; thus, Runner Beans, "about 1633." The Runner Bean or Scarlet Runner, however, was not used for its pods until Philip Miller, about 1730 or later, advocated their use. And the Dwarf Bean, so far as we have learned, was not the Dwarf Bean or French Bean such as we know it to-day. It was a tall Bean, "higher than any man oftentimes," according to Parkinson, and the dwarf forms were first introduced in the middle and later part of the eighteenth century. The subject of the earlier improvements in vegetables, and the history of the same, is very much neglected. This is a portion of Mr. Beckett's book in which we could wish for fuller information, though we know the subject demands wide reading and research, and also access to a representative horticultural library. Some "vegetables," as Seakale and Rhubarb, do not go far back into garden history. The Seakale was used in its blanched state about 150 years ago by covering it with sand, cutting the heads before they pushed through. Rhubarb stalks seem also to have first been used toward the seventh decade of the eighteenth century, when they were employed in tarts, and forcing was soon afterwards adopted to get them earlier. Peas, too, were then first forwarded by artificial heat; while Celery and Potatoes, which had been each neglected, became better understood and valued, and instead of planting Celery at 4in to 5in apart, with roots and tops "pruned" prior to planting, or Potato tubers at 6in apart and lifting them as required late into the season, better systems prevailed. We have seen it stated also, that Turnips were first cultivated in drills somewhat late in the eighteenth century.

The later chapters on packing and staging vegetables will be eagerly read, and the observations on the merits of vegetables are notably concise and to the point. It should be mentioned that in the sub-sections devoted to each kind of vegetable individually, varieties are discussed at suitable length. The book is well got-up, and nicely illustrated, and is sure of a hearty welcome.

Narcissus Waterwitch.

We have all sorts of uncanny names for our loveliest of Spring flowers, among them being the Waterwitch and the White Lady. We remember the White Lady of Avenel, in Scott's "Monastery," and various "white ladies" have been said to appear at the death of members of certain households. Because they are white, therefore, the Daffodils get these names. The newest name for one of the poeticus varieties is Snow-shoe. Well, a name's a name, and nothing more. Waterwitch is no stranger or novelty in the ranks of Narcissi, having been "out" for several years; and it has gained in affection every Spring-time. Rev. G. H. Engleheart was the raiser, and bulbs are purchasable from Mr. Alex. Wilson, of Wisbech. It is a large self white Leeds, of exquisite grace and purity, with long-petalled incurving perianth, and very large, bell-shaped crown. The plant is very free and vigorous, with strong and abundant flowers on tall stems.

A Holiday Tour.

In this progressive age of high pressure, the stern struggle for existence, and the keen competition in all phases of labour, exhausting both the physical and mental endowments of the most robust, it is gratifying to note that nearly every toiler has an annual holiday in which to recuperate. Happily many gardeners share in this beneficent boon. Whilst some gardeners during their rustication find their chief interest in things entirely outside their profession, to the majority methinks their chief relaxation and pleasure is found in visiting other gardens, and in noting the divergent methods resorted to. Armed thus with new ideas, we seem to discern possibilities that are limitless, and which we may at once try to put into practice. I would earnestly commend all employers of gardeners to allow a frequent holiday in which their men might visit other public or private gardens, as I am convinced the mere loss of their labour for a short interval would be more than compensated for by additional knowledge thus gained, and the stimulus and renewed interest imparted. By the amalgamation of horticultural associations, and the proposed interchange of lecturers in future, many should avail themselves of combining a holiday with reading a paper or giving a lecture before one of the societies, which should tend toward improvement.

Last winter I enjoyed a holiday such as I allude to. By the kind invitation of Mr. W. Howell, the courteous honorary secretary of the Oxfordshire Gardeners' Association, I read a paper before that body, when a record attendance was registered. My old friend, Mr. S. Heaton (instructor to the Oxfordshire C.C.), and whose guest I was, is the esteemed chairman of this association. I find that inadequate railway facilities debar gardeners resident at a distance from attending the Saturday evening meetings.

I also had the honour of reading a paper before the Reading Gardeners' Association. This is one of the largest and most important in the kingdom, and of which Mr. H. G. Cox is the capable and zealous secretary. Despite the unpropitious elements and torrential rains, nearly 100 members were present. Mr. Leonard Sutton, the esteemed president, occupied the chair. Mr. W. Turnham is chairman of committee for the current year. My paper evoked an animated and well sustained discussion, and questions of importance were raised, into which also a humorous element was imported. Having been before this association twice previously, pleasing reminiscences still

lingered, and many old friends were present. Will you kindly permit me, Mr. Editor, to compliment both these societies on their laudable and successful efforts on behalf of our noble profession?

BLenheim.

Undoubtedly the best-known gardens that I visited were those of princely Blenheim. What young aspirant to fame as a gardener has not been fired with a keener ambition at the mere mention of such a place as this? Blenheim, with its hundred acres of parks, giant spreading trees, splendidly kept extensive pleasure grounds and flower gardens, and the large area of kitchen gardens, as well as some of the best constructed and commodious plant houses in the kingdom—what a magnifi-

cent place. In one of the houses, already partly filled, are to be placed 7,000 *Odontoglossum crispum*, and a house, 120ft by 30ft, is to be devoted to *Cattleyas*, of which there are now grand plants. Three houses contain perpetual-flowering *Carnations*, the plants strong and robust; another contains *Malmaisons*. In one house a fine batch of *Nerine Fothergilli major* was seen. *Callas*, planted out, occupied a wide centre pit running the entire length of an 120ft house. *Strawberries*, also planted out, filled a pit of the same dimensions. Mr. Garrett, who at my visit was at the head of this great charge, welcomed friend Heaton and myself with great cordiality. Situated close to the quiet little town of Woodstock, the palace presents a most



Narcissus Waterwitch. (Natural size.)

imposing appearance directly one enters the ornate stone arch of massive masonry at the entrance. There is a long drive through a noble park.

TYTHROP HOUSE.

Tythrop House, Thame, was my next place of call. This is the charming residence of B. J. D. Wykeham, Esq., and is an ideal country home. Mr. Wykeham and his esteemed lady are most ardent horticulturists, evidenced by the fine collection of ornamental flowering trees, shrubs, and plants. Punctilious care of them is discernible in every part of the gardens. The beautiful mansion is approached by a long drive through an extensive and finely wooded park, and conveys the impression of repose. Nevertheless, it is surrounded by a warmth and richness of varied vegetation. The whole place reflects great credit on the able gardener, Mr. W. H. Lewis. The walled in kitchen gardens are well stocked with seasonable vegetables. Peaches and Nectarines do well, especially the early sorts, but

it is found that such varieties as Sea Eagle are too late even for a south wall. Some fine Freesias were noted in a cool house, while the stove contained some good plants of Clerodendron Balfouri, Begonias President Carnot and metallica, and a few healthy Cypripediums. One vinery here contained the finest Alicante Grapes that I saw in my travels. A pretty little conservatory was resplendent with well-grown 'Mums, in which the variety Mrs. Mease figured conspicuously.

THAME PARK.

Thame Park is another fine place, situated one mile from Thame, and is the home of W. A. Musgrave, Esq., the gardener being Mr. J. T. Shann. This charming domain, with its picturesque mansion several centuries old, stands in a well-timbered park of great extent. Trees are veritable giants, and without these our stately homes of England would be lacking in their grandeur. The pleasure grounds are margined on one side by a large informal lake. Bedding is extensive and on very natural lines, the beds being placed at irregular intervals, with none of that mathematical precision so frequently met with. There is also some fine conifers—the Hemlock Spruce, &c. The vinerias and Peach houses were congested with large specimen Fuchsias, Heliotropes, Cannas, and Aralias, used for outside beds for summer display. The stoves contained well-grown miscellaneous plants, orchids included, rendered bright with Poinsettias, without which our houses would lose warmth and be dull. There were some good Chrysanthemums, and the finest blooms of Madame Carnot I have seen for years.

THE SHRUBBERY, OXFORD.

The Shrubbery, Oxford, might be accurately described as a highly desirable town residence. Its owner, F. Menteith Ogilvie, Esq., is a well-known enthusiastic orchidist, who, with the skilful assistance of his expert grower and gardener, Mr. W. Balmforth, has won numerous gold and silver medals, also certificates and commendations for groups and individual plants staged at the R.H.S. meetings. As recently as January of this year they were awarded a silver Flora medal for fine specimens of Cypripedium insigne Sanderae, C. Euryades, and C. Leeaunum. Of necessity restricted in space, orchids almost exclusively are grown, and we note here advantages of concentrated skill and constant effort devoted to one particular order of plants. Some 10,000 plants, in varying stages, from those just placed in the tiniest receptacles, to huge plants built up by the care and labour of years, the whole in robust vigorous health, are in the houses. Much hybridising is accomplished, so that there are many seedling forms in all stages. These are principally Odontoglossums, Cypripediums, and Cattleyas. We were shown photos of the several gradations of gestation, which were most interesting. In bloom at the time of our visit there were grand pieces of Phalaenopsis amabilis, Lælia anceps alba, Cymbidium Lowianum and C. giganteum, Cypripedium Leeaunum, and many seedling forms. Odontoglossum crispum of various types, but perhaps the most conspicuous of all was a magnificent batch of Cypripedium insigne Sanderae; truly a vision worth going the length of England to view.

HEADINGTON HILL HALL.

Over a great area traversed in Oxfordshire, most of the county presented a uniformly flat surface, but the above palatial establishment stands on a high eminence, and seems to overlook, like a giant sentinel, a large portion of this unique city, and from which it is only one mile distant. The gardens are amongst the largest and best-kept in the county; certainly of those in the vicinity of Oxford. As the seat of Mrs. Herbert Morrell, the landscapists' art is pronounced in charmingly laid out acres of pleasure grounds, which are undulating and full of pleasing features. Here we received a hearty welcome from Mr. Chodloc, whom we found engaged in re-arranging and re-planting his fine herbaceous plant borders. The fruit houses, of which there are good ranges, are well stocked, and were being cleaned for an early start. The centre stage house was devoted to well-flowered Begonia Gloire de Lorraine. In what might be termed a winter garden we seemed to be viewing plants in their native habitats under natural conditions. The path through is winding; plants of scanty habit adorn the roof, and the walls are draped with ferns and other foliage plants, growing without restriction. An interesting feature is a collection of cacti in a cool house, but which in summer is plunged out in pans, and form, with other subjects, a kind of South African garden. Roses do remarkably well, and fine trees were in full bloom, and flowers also from bush forms. On the lawn there is a grand specimen of Magnolia conspicua, over 20ft in diameter, which annually flowers profusely.—W. TRIBBICK.

(To be concluded.)

Hydrocyanic Acid Gas.

Experiments with hydrocyanic acid gas for fumigating Roses have not been so successful as with other plants, the tender young foliage being injured in most of them.

Clubbing in Brassicas.

In 1845, most gardeners and farmers were well acquainted with the clubbing of Cabbages, and the finger-and-toe disease of Turnips. The farmers had the least trouble, for they acted upon a system of culture quite different from that of the allotment and small holding occupier in the matter of rotation. The time between a Cabbage or Turnip crop with farmers was never less than four years on either light or heavy land, though in chalky districts the "roots" came about every third year, or the Yorkshire wolds system, i.e., wheat, roots, barley, peas, roots, oats, and seeds. The four-course system was mostly followed by farmers, i.e., on heavy land, as: *First year*, autumn sown cereal crop (wheat); *second year*, fallow crop (roots, turnips, mangolds, cabbage, potatoes, &c.); *third year*, spring sown cereal crop (barley or oats); *fourth year*, leguminous crop (clover, in mixture or alone, peas, beans). The fifth year was the same as first, and so on. On the lighter soils, wheat was followed by roots, these by wheat, that by barley, and that by clover. There was in all cases three years between the recurrence of the Brassica crops, and thus the clubbing of Cabbages and the finger-and-toeing of Turnips, being less frequent, or not recurrent, was attributed to the crop rotation.

On the allotments, and even on small holdings, the cropping was different. The clover or "seeds" on allotments were practically precluded in the course of rotation, and in the case of the small holding it was seldom practised. The Gramineæ (all grasses and cereals) in some cases had no part in the rotation, though in those days there was a possibility of growing cereals on allotments: wheat for the use of the family, with "hinder ends" for the pigs, with straw for converting into manure.

Now I am not going to follow the rotation system further than to say that where there was a proper system of rotation of crops, there was practically no clubbing or finger-and-toe. On the other hand, where the cropping was of a redundant nature as regards manure, and that means crops with a frequent recurrence of the same plant on the ground, clubbing in Cabbages and finger-and-toe in Turnips was as certain as the seasons. We—I say we, for schoolboys in those times had to work—had a piece of land which in my time at home was always devoted to early Potatoes (Ashtops), and Turnips afterwards. But the land got "sick" of the Turnips, and the "epidemic" ended the second-crop Potatoes, for it was a practice to sell the first crop usually about midsummer or early in July. The market was twenty-four miles away, and demanded an overnight journey to catch the "early worm" of the market at Vicar's Croft, Leeds. We would wake up to hear the Leeds Old Church clock strike one in the morning; and to have muffins and coffee for breakfast, or ham and eggs, was something worth remembering. We started off again at noon; two baiting places; plenty of "shandy gaff"; walking till "done up"; then the ride, excitement of market, sight of town, return journey in perhaps a new suit of clothes, something to rivet the attention in brass buttons; all within forty-eight hours; and in the end, a reckoning up—rent and taxes put in one bag, and in another a goodly sum to take to bank, with something besides for household shopping. Thrift? Yes, the workers on the land practised it in 1845, and in old age kept out of the workhouse, and had no conception of State pensions.

What has all this to do with clubbing and finger-and-toe? In the example I have given it has everything to do with it. Nowhere was clubbing and finger-and-toe found, but where there was no proper system of rotation followed. It was the "tinkering" system of farming and gardening that induced these diseases. I left the small holding for gardening, and the gardener—a fifty years stager in one place—swore by "muck," lime, soot, and guano, with sulphur, tobacco water, and softsoap as fungicides and insecticides. There was no clubbing there, and from that day to this I have never had a clubbed Cabbage, or a finger-and-toed Turnip on any soil I have been fortunate to work on. The simple reason for this I attribute, rightly or wrongly, to always using air-slaked lime and soot where I have been, and in attending to a change of crop at every succession.

I know I am trespassing on pet principles, but I have found there is no teacher like experience, and very much regret that present-time operators are too remiss in not recording their experiences. And, after all, what mean the old disused chalk-pits so numerous in Hertfordshire? No finger-and-toe in their day! Yet in a garden plot I have had under observation for some years, Cabbages club and Turnips have finger-and-toe. The soil formation is chalk, but this is several feet beneath the surface, and the circumambient earth so free from lime that Rhododendrons thrive in it. The vegetables grown are Cabbages, or Brassicas, Onions, Potatoes, Beans, and Peas. There is a change of crop, but there is nothing of the rotation of the four-course system, as very often Brassicas follow early Potatoes in the same season, and in the case of Onions there is the previous manuring for the fungus to live in from year to year. Gas lime has been used, also stone lime, yet the disease recurs. What will cure this stricken plot? Lime, which may,

and does, correct soil acidity, and renders the organic matter inorganic so far as not to be of any use to the fungus, and that is the sole reason why lime acts deterrently as regards the spores. Lime dressings in autumn or winter only act by taking away the nutriment of the fungus on which it could otherwise live in an active stage, while a crop it does not attack is on the ground. The spores, or their contained protoplasm, remain quiescent until called into activity by the presence of the food-plant they need for purposes of growth. The liming, therefore, should only be to act on plasmodia effectively, concurrent with the putting in of the seed or plant. This, of course, is inconvenient, and in some respects inadvisable, as the causticity of the lime may act injuriously on the crop-plant, but I have made it an invariable practice to either broadcast a dressing of air-slaked lime before sowing or planting, or as soon as the plants are above ground in the case of seed, at the rate of a peck per rod, or 40 bushels per acre. The lime acts well against most predatory pests, and saves Brassicas from the creeping plasmodia or slime-fungus (*Plasmodiophora Brassicæ*).

The growing plants are attacked at all ages, but it is chiefly in the seedling stage that infection occurs, seed-beds being a frequent source of club-root in the case of Brassicas, and of the disease being transferred from one locality to another. But the chief source of infection is by the slovenly practice of throwing diseased plants on the manure heap, to be taken to the land as manure surcharged with spores. They should be placed on the fire or char-heap, and the burnt refuse containing lime and potash may be returned to the land with perfect safety. Rotation of crops, and above all, keeping down weeds, will avoid the evils. In substance and in fact, the best way to keep clear of pests of all kinds is sweetness of land, thorough cleanliness and sanitation.

In the matter of fertilisers, basic slag and bonemeal are to be advised for use instead of superphosphates, especially the lower grades, as the latter contain free acid more or less, and the club-root fungus spores will mostly push their amoeba-like exudations and seize on substances saturated with the acid just as they also revel in soil soured by heavy and frequent manuring. Basic slag, 10 cwt per acre, and 5 cwt kainit for the finger-and-toed Turnip land, alluded to as being cultivated in my early days, would have made just all the difference between Turnips and no Turnips, had we only known the cause. M. Woronin, a Russian botanist, explained club-root in 1876. Of course, half quantity of basic slag and kainit would have sufficed at the time of sowing the Turnip seed, but nobody in those days dreamed of liming light land, or knew of the value of kainit as an accompaniment.—G. VERULAM.

Aphides.

APPLE APHIS (*A. mali*), like Cherry aphid, is very prevalent on wildlings in hedge rows and woodlands, both Cherry and Crab-trees being common in these places; and a notable fact is that of pruned bushes as hedgerow plants having the shoots more affected than standards. The aphides are a sort of claret in colour, and are as closely packed at the under side of the leaves as they can well be. Winged examples are there in early July. In the autumn the winged and fertilised females return.

PEACH AND NECTARINE APHIS (*A. persicæ*) is very much mixed up, for there is a dark green form that attacks the young as soon as they develop, curling and twisting the leaves in a very pernicious way. These ultimately develop wings, and leave the trees in June or July, and return in autumn for depositing eggs. The eggs are black and not distinguishable from those found on the under side of Strawberry leaves, and which hatch out, the larvæ fastening on the pushing young leaves and flower trusses from forced Strawberry crowns under glass. Surely this a close ally of the Rose aphid (*Siphonophora rosæ*).

The true Peach aphid (*A. persicæ*), or what I have known as such for over fifty years, and only under glass, is dark brown, and lives over winter on the young wood, though this, of course, is leafless. Though an apparent clearance may be effected in winter or spring, it usually appears again in late summer, and almost invariably on the young wood in preference to the leaves. Winged forms are very rare, probably because the pest is not allowed to produce them, being generally destroyed as soon as seen, and in the wingless stages. Of its life history I could never discover more than stated. Whence it came, whither it went, and whence returned, remained unsolved. Probably some correspondent may be able to fill up the gap. It appeared, however, never to leave the Peach or Nectarine trees if it could avoid it. When it re-appeared, it was always on the low branches. Possibly it hibernated in the soil, though this is discounted by its winter appearance on the young wood. One thing is certain, it is the hardest to kill of all the aphides, the next being the blue fly of the Plum, and in order following, the black fly of the Cherry.—T. R.



The Summer Pruning of Fruit Trees.

Summer pruning is a practice which recurs annually, and it is one which gives rise to greater diversity of opinion among cultivators as to time and methods of procedure than almost any other connected with fruit cultivation; but while I make this statement I would also like to add that I can scarcely hope to impart any information which may be accepted as a definite rule to act upon in its practice, or which will materially tend to elucidate the somewhat uncertain and haphazard methods which largely prevail in carrying out the work. On the other hand, should any remarks which I have to make lead to deeper thought, and to evoke greater interest in the matter, it cannot fail to be of some benefit.

One cause for much of the uncertainty which attends the practice undoubtedly arises from the fact that a system of operations which answers well in one district may be quite the reverse in another, owing chiefly to differences of soil, temperature, and weather influences upon the trees. The changes in the seasons alone, late or early as the case may be, often make a difference of a fortnight or more in the proper date for commencing the work; to which may be added the vagaries of growth shown by varieties belonging to the same species, necessitating prudent forethought and discrimination in order to recognise when the operation should take place.

In the first place, summer pruning must be viewed from a certain standpoint as a necessary evil, the dispensing with which, could it be done, would in every way benefit the trees; but growing, as so many of them are, under restricted conditions as horizontal, fan and cordon trained trees, due thinning out and regulation of the shoots at some time during the growing season is imperative to the maintenance of health, vigour, and fruitfulness. In the case of the same varieties planted out in the open ground as standard trees, and having a good rooting medium, the heads may be allowed to develop unchecked, excepting for the removal of any weak or cross-growing branches; but in the case of such trees the less the leading shoots are interfered with by way of pruning the more speedily will large heads be formed and crops of fruit be produced. Trees growing against walls must of necessity have their buds and foliage produced for the most part on one side of the shoot, and as the apportioned space becomes filled up, and no further extension of branches can be allowed, vigorous annual lateral growths have a tendency to become redundant, and the light, air, and space necessary for the development of the latent buds becomes so limited that weak growth and unfruitfulness must follow.

The advantages of root-pruning at the present time, when dwarfing stocks like the Paradise and Quince are so much in favour for Apples and Pears, it may be said that, compared with what one might reasonably suppose existed when free stocks alone were used, a new phase of culture has been introduced, but it may be said at the same time that systematic root-pruning was then but little understood, or at least was rarely put into practice. The question of root-pruning will, however, only be introduced here in so far as it affects the subject under notice.

The Paradise and Quince stocks have become popular owing to their moderate growth and to the earlier fertility of fruit-bearing scions when grafted upon them. For a few years after planting, and while the tree is extending yearly, the balance between root and top is about equal; but once the allotted space is filled up, and the roots have the run of a strong fertile soil, a disproportion between the two is at once observable. This arises from the fact that the roots supply more sap than the limited amount of foliage can elaborate, and too much vegetative shoot production takes place. To summer prune these shoots to three or four leaves, as would be done with a tree under more natural conditions, would mean that many others would speedily form, which, in turn, would require similar treatment, and the chances would be that the basal buds, which under more favourable circumstances would develop into fruiting spurs, would also start into growth, and be thereby spoiled for that purpose. It is therefore clear that root-pruning and summer pruning of the shoots should be carried out in conjunction, the one by restricting the root-feeding propensities

of the plant to a certain extent, while the other acts in a similar capacity upon the top.

APPLES AND PEARS.

These fruits are so closely associated in respect to cultivation and forms of training, and are so equally amenable to summer pruning, that they may be classed together. Trees of these growing against walls or espaliers, and consequently somewhat restricted in growth, must at some time during the summer months undergo a course of treatment by way of pruning in order to maintain them in a fruitful state, as well as to keep the foreright spurs or branches within reasonable bounds. How best to accomplish this without causing a severe check, and at the same time to secure the best possible results, has for long been a subject of controversy among the leading authorities upon hardy fruit cultivation, some of whom aver that one operation taking place when the current year's growth nears completion, say in August, earlier or later according to the season, is sufficient; while others as strenuously maintain that timely pinching of any shoots that show a disposition to take a lead should be carried out whenever this is manifest, irrespective of any particular date. That good crops, together with health and longevity of the trees, is attained under both systems when intelligently performed is evident, otherwise one or the other would have fallen into disuse long ago. In this it would appear that what is essential to enable the cultivator to reach success by either system is for him to have at the beginning a clear idea of that which he intends to follow, and to work throughout on that principle. My own experience respecting the former system is that a timely pinching of shoots that are more vigorous than others, when they have reached a length of 6in or thereabouts, checks the flow of sap in one direction and turns it to the assistance of those that have failed to secure their proper share.

Bush and pyramid trees upon dwarfing stocks may receive treatment very similar to that recommended for wall trees, as judicious summer pruning is decidedly better than allowing an exuberant and useless growth to form, to be cut away in the dormant season. With trees in the open, however, the spread of branches and consequent free exposure to light and air renders the doing of this of less importance than would be the case with those more rigidly trained. Growth in general is considerably later with these trees than with the last named, hence the work may be deferred until a slight hardening of tissue takes place, which, roughly stated, may be towards the end of July, when surplus growths may be entirely removed, and those for forming spurs be shortened in the usual way, leaving the leaders or any required for the proper furnishing of the trees at full length.

APRICOTS, PLUMS, AND CHERRIES.

The dessert varieties amply repay time and attention being paid to them by way of stopping and regulating growth. With these, pinching of the more prominent shoots at short intervals, from the end of May until the middle of August, should be substituted for pruning, the wood not being allowed to grow for such a length of time as to require a knife for severance. In this way the work is very speedily done owing to the brittleness of the shoots, and long bare spurs so often seen in neglected trees are non-existent; furthermore, the flower buds are kept close to the wall so that the greatest possible amount of protection is derived therefrom at the critical period. Plums, of course, thrive well, and the hardier kinds fruit freely, when planted in the open, where their treatment in respect to summer pruning very closely approaches that detailed as best suited for the Apple and Pear. In dealing with the five species of fruit-bearing trees named, the principal object is to so regulate the annual growths that the free passage of the most essential elements in fruit production—light, air, and warmth—are accessible to all parts. Before proceeding, reference may be made to the peculiarities possessed by some varieties of fruits in respect to summer growth. As an instance of this Marie Louise Pear may be taken as an example. Trees of this variety as they attain age, but more especially if they are grafted upon the free stock, send forth thin, puny shoots in great abundance, while at the same time an ample supply of naturally formed fruit spurs are clustered about their bases. To shorten the great majority of these, which are already too thickly placed, and thereby cause them to break afresh, is only an aggravation of the evil which is to be avoided. With such it is best to break off the greater number at the base by a dexterous movement of the hand, which is quickly acquired by the operator, whereby the buds mentioned receive the maximum amount of space and exposure for their full development. Several other varieties could be mentioned which are much addicted to this habit of growth, but no useful purpose would be served by naming them; furthermore, the cultivator can by personal observation easily determine which are most in need of this treatment.

Another peculiarity occasionally seen is that of old and very fruitful trees producing flower buds with such freedom that summer growth is mostly confined to a comparatively small

number of blunt pointed shoots, which cease extending when about 8in in length, the tree apparently having exhausted all its energies, so far as growth is concerned, in perfecting its fruiting system. Having dealt so far with the evil arising from an excess of shoots, it may be remarked that scarcely less objectionable is a super-abundance of buds, and where this prevails a careful thinning out of these as a part of the summer culture is highly beneficial to the trees.

Peaches, Nectarines, Figs, and Morello Cherries scarcely come under the head of summer pruning in the same sense that it applies to the fruits already mentioned. With the first two, disbudding in early summer reduces the necessity for much pruning later on. Figs are greatly benefited by having surplus shoots removed at mid-summer, and any others having fruit at their bases reduced in length to one or two leaves, thus assisting in the maturity of the latter, and largely obviating the necessity of much pruning in winter.

GOOSEBERRIES AND CURRANTS.

Whether grown against walls or espaliers, or as bushes in the open, Gooseberries and Currants are greatly benefited by having a considerable proportion of their shoots removed before the crop commences to ripen, by which means size and maturity of the fruit, as well as that of the shoots and spurs, are accelerated. Gooseberries grown in upright or oblique form, as cordons, apparently differ from any other fruit tree in their mode of growth in that the congestion of shoots, if any, occurs near the base of the plants instead of at the top, according to the general rule in all other fruits. This habit is singular among British fruits, and it forms an exception in which it is necessary to depart from the long-established custom of reducing the shoots at the greatest altitude several days in advance of those below.

In conclusion, I may state that moderation in summer pruning should always be practised, it being preferable to remove too few shoots at one time rather than too many, and in every case the upper parts of the tree should first receive attention. It is unfortunate in one respect that the trees, to do them justice, must be operated upon at the busiest season of the year, when the pressure of work in other departments monopolises most of the time that might otherwise be afforded and profitably spent upon them. By leaving the work over until the near approach of autumn, not only is the full development of the current year's fruit crop hindered, but it is also a waste of energy which, with timely attention, might have been turned to good account in succeeding years.—JAMES DAY (from the Transactions of the Scottish Horticultural Association.)

Societies.

R.H.S. Scientific Committee, May 12th.

Present: Mr. E. A. Bowles, M.A., F.L.S. (in the chair); Dr. A. Voelcker, Messrs. G. S. Saunders, H. T. Güssow, L. de B. Crawshaw, J. T. Bennett-Poë, H. J. Elwes, W. C. Worsdell, E. M. Holmes, J. Douglas, and F. J. Chittenden (secretary). Visitor, Rev. A. R. Upcher, M.A.

Malformed Narcissus.—Mr. W. C. Worsdell reported that he had examined the malformed Narcissus J. T. Bennett-Poë sent to the last meeting by Messrs. Hogg and Robertson, and found that the flower exhibited signs of fasciation, but this was only partial, since the perianth pieces were only nine in number, as were the stamens; there were, however, two completed formed ovaries, each with its full complement of three carpels. The style was somewhat flattened, and springing from its base was a branch which was probably a second style. This had become petaloid and tubular, and in the tube thus formed a third style had developed.

Fasciation in Narcissus.—Mr. J. W. Odell sent flowers of Narcissus Emperor which had been produced after all the normal flowers in the bed had died off, and which were fasciated, some having flattened stems bearing at the apex three flowers each on a separate pedicel, others having the fasciation carried farther, so that the flowers themselves were coherent.

Pelorie Calceolaria.—Mr. H. Tysoe, of the Lodge Gardens, Bedford, sent flowers of Calceolaria showing regular peloria. All the flowers on the main branches of the inflorescences of two plants exhibited this phenomenon.

Primulas.—Mr. Douglas showed on behalf of the Right Hon. the Earl of Waldegrave some flowers of the green primrose, in which the corolla is virescent and the stamens are but imperfectly formed. Rev. A. R. Upcher, M.A., of Halesworth, Suffolk, showed a large number of flowers of Polyanthus of large size and much substance, and many with a very distinct eye. The calyx was large and very broadly campanulate in most of the flowers. Mr. Upcher had started some thirty years since with the old "butter" Polyanthus, and had pollinated this with

pollen from *Primula sinensis* and *P. Auricula*; but although considerable variation in many directions was observable in the flowers shown, the committee did not consider that there was any evidence that the pollen of these species had had any effect in producing the results obtained. Some of the forms had fringed petals, some smooth edged, the petals in some were remarkably broad, the "eye" was well marked and contrasted with the remainder of the corolla in some, while in others the deep colour was suffused over the whole of the petals. The collection showed in a marked manner the variation obtainable in Polyanthus through cultivation without the introduction of new blood. Mr. Bowles showed a number of flowers of *P. officinalis* from a wild source lacking the deep yellow spot which is usually to be found in the flowers of this species. He asked that others would make observations in order to note whether this was a common phenomenon or not.

Seakale Disease.—Mr. H. T. Güssow showed a specimen of Seakale which had become rotten, one of a considerable number in a plantation in Norfolk, which he said had been attacked by a bacillus, at present undescribed, differing in certain characters from *Pseudomonas campestris*. He considered that the attack of the organism upon the Seakale had been made possible by the methods adopted in forcing the Seakale, and that the attack might have been avoided if air had been admitted by raising the Seakale pots somewhat above the soil level, so as to admit air.

Amaryllis sp.—Mr. H. J. Elwes, F.R.S., showed a plant apparently allied to *Amaryllis solandreflora*, but having a rose suffusion upon the perianth. The flowers are of very elegant form, and the plant appears to be very rarely met with in this country.

Moraea iridioides var. Johnsoni.—Mrs. J. L. Richmond, F.R.H.S., of Woodlands, Lustleigh, South Devon, sent a flower and leaf of the very beautiful variety *Johnsoni* of *Moraea iridioides*. The flowers are considerably larger than those of the type or the variety *Macleayi*, and the foliage is upright instead of being fan-shaped; the bud was picked on May 7th, and the flower was still almost perfect on the 12th. The seed from which the plant sprung was brought by a lady (Mrs. Johnson) from the mountains of Ceylon, where it had probably been originally taken from South Africa.

National Auricula—Northern Section.

MAY 2, 1908, COAL EXCHANGE, MANCHESTER.

The thirty-fifth annual exhibition of this society was a very successful one so far as numbers of plants exhibited and of exhibitors were concerned, but the uncongenial spring had left its mark upon many of the exhibits, and most of us could have shown better had the show been held a week later. None of the Southern or Midland growers put in an appearance, which was rather a pity, as they must be just now at the height of their bloom, and the competition with the southern flowers would have been very interesting.

The Show Auriculas were, generally speaking, rather rough, due to the show being held too soon for the majority of the growers. It was pleasant to see among the grey edges that old flower George Lightbody in such good style and in such numbers. White edges were weak, and greens below the average. Selves were plentiful and good, and it was interesting to see Mrs. Potts dethroned by a seedling of Mr. Wilson's, called Miss Violet, a flower much in the style of Mrs. Potts, but a better truss maker with much stouter petals than that ubiquitous variety.

Alpines were shown in bewildering numbers. New varieties were plentiful and good; the awards of the judges did not in all cases suit some of the exhibitors, and certainly many excellent flowers were overlooked. There was much excuse for the judges, for there were so many shown that it was impossible for them to look for merit in flowers where the exhibitors had not taken the trouble to stage them properly. It does not matter how good a flower is if it hangs its head and does not face its judges; it is deservedly passed by, for it is not in show trim, and should not have been exhibited. Many of the younger exhibitors need to study staging, and take a lesson or two from, say, Mr. Lord. Another difficulty the judges have. There are so far as I know no definite rules for judging alpines extant, and therefore much is left to their personal inclination.

Polyanthuses were not quite as good as usual. Mr. Bentley managed to beat Mr. Lomas with old varieties, simply because of better condition. The George IV. that won the premier was pronounced to be the best example of that old variety seen for many a long year.

Messrs. S. B. Bolton, J. H. Abbott, T. Sharpe, J. Antrobus, and Mrs. Helen Young made creditable exhibits as new growers; it was especially gratifying to see a lady coming forward as an exhibitor of Polyanthuses.

All things considered the members of the Northern Branch of the National Auricula Society (Northern Section) may feel abundant satisfaction with the present position. Although not financially strong, they are full of enthusiasm, and a word of

praise must be given to Mr. J. Longe, of Altrincham, who has worked hard to spread interest in the society, and who managed to supply to visitors to the show, within a remarkably short period, a full and complete copy of the awards of the judges, and the names of the successful flowers and their owners. Our judges were Messrs. Bolton (Warrington), Prescott (Manchester), Mottershead (Sale), and Oldham (Middleton), and they made the following awards:—

LIST OF PRIZEWINNERS AND EXHIBITED FLOWERS FOR 1908.

AURICULAS (ALPINES EXCLUDED).

Class 1.—SIX DISSIMILAR AURICULAS.—1, T. Lord, Todmorden, with G. Lightbody, A. Barker, Mrs. Potts, Acme, Ruby, and Mrs. Henwood; 2, W. H. Midgley, Halifax, with Ruby, Orient, Letitia, Mrs. Henwood, John Simonite, and G. Lightbody; 3, J. H. Wilson, Sheffield, with G. Lightbody, Favourite, Letitia, A. Barker, Cleopatra, and Trails Beauty; 4, W. M. Shipman, Altrincham, with Ruby, G. Lightbody, A. Barker, Acme, Mrs. Potts, and Mrs. Henwood; 5, A. Yates, Castleton, with Mrs. Potts, Rachel, Conservative, G. Rudd, A. Barker, and G. Lightbody; 6, J. E. Beaumont, Stalybridge, with G. Rudd, Acme, Gerald, Mrs. Potts, Shirley Hibberd, and Rachel; 7, S. Etherington, Middleton Junction, with G. Rudd, A. Barker, General Gordon, Ruby, Heatherbell, and G. Lightbody.

Class 2.—FOUR DISSIMILAR.—1, T. Lord, with Mrs. Henwood, G. Lightbody, Acme, and Mrs. Potts; 2, J. E. Beaumont, with Acme, G. Rudd, Shirley Hibberd, and Mrs. Potts; 3, F. Faulkner, Manchester, with Acme, Ruby, G. Rudd, and Rev. F. D. Horner; 4, J. H. Wilson, with Acme, Rachel, A. Barker, and Miss Violet; 5, W. M. Shipman, with Acme, R. Headley, Miss Ethel, and Mrs. Potts; 6, W. H. Midgley, with G. Lightbody, Orient, Acme, and Ruby; 7, A. Yates, with Acme, Ruby, Rachel, and A. Barker.

Class 3.—PAIRS OF AURICULAS.—1, J. W. Bentley, Middleton, with Shirley Hibberd and Ruby; 2, J. H. Abbott, Heaton Mersey, with Shirley Hibberd and Mrs. Potts; 3, S. B. Bolton, Warrington, with G. Lightbody and Mrs. Potts; 4, J. Stelfox, Stalybridge, with Trails Beauty and Gerald; 5, B. Simonite, Sheffield, with James Hannaford and Ruby; 6, G. D. A. Hall, Stockport, with Lancashire Hero and Heroine; 7, F. J. Dickens, Worsley, with Cleopatra and Acme.

Class 4.—PAIR OF AURICULAS FOR MAIDEN GROWERS.—1, J. H. Abbott, with Shirley Hibberd and Mrs. Potts; 2, S. B. Bolton, with G. Lightbody and Mrs. Potts; 3, T. Sharpe, Kendal, with Mrs. Phillips and seedling; 4, James Antrobus, Wilmslow, with G. Rudd and Rev. F. D. Horner.

Class 5.—ONE GREEN EDGE.—1, W. M. Shipman with A. Barker; 2, T. Lord with A. Barker; 3, J. W. Bentley with Shirley Hibberd; 4, T. Lord with A. Barker; 5, J. H. Wilson with Shirley Hibberd; 6, A. Yates with A. Barker; 7, A. Yates with S. Hibberd; 8, J. W. Bentley with S. Hibberd.

Class 6.—ONE GREY EDGE.—1, T. Lord with G. Lightbody; 2, T. Lord with G. Lightbody; 3, W. M. Shipman with G. Lightbody; 4, W. M. Shipman with G. Lightbody; 5, S. B. Bolton with Lancashire Hero; 6, T. S. Sharpe with R. Headley; 7, J. H. Wilson with George Rudd; 8, W. H. Midgley with G. Rudd.

Class 7.—ONE WHITE EDGE.—1, T. Lord with Acme; 2, A. Yates with Acme; 3, W. M. Shipman with Acme; 4, W. H. Midgley with Letitia; 5, T. Lord with Acme; 6, J. W. Bentley with W. Breckbank; 7, S. B. Bolton with Letitia; 8, J. E. Beaumont with Acme.

Class 8.—ONE SELF.—1, J. H. Wilson with Miss Violet; 2, J. W. Bentley with Midgley's Seedling; 3, T. Lord with Mrs. Potts; 4, T. Lord with Mrs. Potts; 5, W. M. Shipman with Mrs. Potts; 6, J. Stelfox with Ruby; 7, J. E. Beaumont with Gerald; 8, F. J. Dickens with Gerald.

Class 9.—THREE DISSIMILAR (for growers not employing a gardener).—1, J. E. Beaumont, with Acme, Shirley Hibberd and Mrs. Potts; 2, W. H. Midgley, with Acme, G. Rudd, and Orient; 3, J. Stelfox, with Conservative, Gerald, and Mrs. Potts; 4, F. Faulkner, with G. Rudd, Ruby, and Shirley Hibberd.

Class 10.—ONE SEEDLING.—1, J. H. Wilson with Miss Violet; 2, B. Simonite with Oessian; 3, W. H. Midgley with seedling.

Class 11.—FOUR DISSIMILAR (for maiden growers in 1905, 1906, 1907, or 1908).—1, F. Faulkner, with G. Lightbody, Ruby, Letitia, and Shirley Hibberd; 2, James Antrobus, with Ruby, Heroine, Acme, and Rev. F. D. Horner; 3, J. Fillingham, Manchester, with Heroine, Ruby, Trails Beauty, and Mrs. Potts.

Class 12.—SIX DISSIMILAR ALPINES (shaded).—1, J. W. Bentley, with J. F. Kew, Captain Hunt, Vestal, Miss Vernon, Gentle Jackie, and D. Jackson; 2, T. Lord, with Mrs. J. W. Bentley, Mrs. Lord, Gentle Jackie, Miss Baker, Mrs. M. Smith, and Mabel; 3, F. J. Dickens, with Sam, Firefly, Pluto, Miss Baker, Lillie Dickens, and Quakeress; 4, G. Geggie, with Mrs. Poulson, Aigla, W. Hughes, A. R. Brown, Greenfinch, and Rosy Morn; 5, W. M. Shipman, with Argus, Mrs. Smith, Rosy Morn, Teviot Dale, Melaine, and Thetis; 6, J. Stelfox, with J. F. Kew, Firefly, Harold, Bright Eyes, Mrs. M. Smith, and seedling.

Class 13.—FOUR DISSIMILAR.—1, T. Lord, with Pluto, Mrs. J. W. Bentley, Miss Baker, and Gentle Jackie; 2, F. J. Dickens, with Oswald, Attraction, Rufus, and E. Phillips; 3, J. W. Bentley, with J. B. Same, Vestal, Claribel, and Lottie Slowboy; 4, W. M. Shipman, with Mrs. M. Smith, Rosy Morn, Thetis, and Teviot Dale; 5, J. E. Beaumont, with Firefly, Gwendoline, Mrs. Turner, and Weber; 6, J. Stelfox, with Nonesuch, Mrs. Smith, Pluto, and Thetis.

Class 14.—PAIR DISSIMILAR.—1, S. B. Bolton, with Firefly and Thetis; 2, Jas. Antrobus, with Pluto and Duke of York; 3, G. D. A. Hall, with Firefly and Duke of York; 4, J. E. Beaumont, with Mrs. H. Turner and Leonard Seedling; 5, T. Lomax, Stalybridge, with Forest Queen and Mrs. Durnford; 6, F. Faulkner, with seedlings.

Class 15.—PAIR (for maiden growers).—1, S. B. Bolton, with Firefly and Thetis; 2, Jas. Antrobus, with Pluto and Duke of York; 3, J. Tonge, Altrincham, with Duke of York and Thetis.

Class 16.—ONE YELLOW CENTRE.—1, G. Geggie with Joyce Atkinson; 2, J. W. Bentley with Dr. Kershaw; 3, T. Lord with Mrs. M. Smith; 4, S. B. Bolton with General Buller; 5, T. Lord with Pluto; 6, W. M. Shipman with Mrs. Markham.

Class 17.—ONE WHITE CENTRE.—1, J. Lomax with Mrs. N. Turner; 2, T. Lord with Winifred; 3, J. W. Bentley with Cynthia; 4, W. M. Shipman with seedling; 5, G. Geggie with seedling; 6, J. Edwards, Blackley, with seedling.

Class 18.—THREE DISSIMILAR (for growers not employing a gardener).—1, J. E. Beaumont, with Leonard seedling, Thetis, and Firefly; 2, G. Geggie, with Mrs. Lord, Willie Hughes, and seedling; 3, F. Faulkner, with Ruby and seedling; 4, W. Stringer, Middleton, with Dr. Knox, Miss Walker, and seedling.

PREMIER EXHIBITION ALPINE.—Mr. J. W. Bentley with Miss Vernon.

GOLD-LACED POLYANTHUSES.

Class 19.—THREE DISSIMILAR, BLACK GROUND.—1, J. W. Bentley, with Mrs. S. Holden, Exile, and Mrs. Brownhill; 2, J. Lomas, Seedley, with Coronation, Princess Ena, and Fred Morrey; 3, W. Stringer, with Tiny, Mrs. Holland, and Mrs. Brownhill.

Class 20.—THREE DISSIMILAR.—1, J. W. Bentley, with Sir S. Smith, George IV., and Middleton Favourite; 2, James Lomas, with Red Don, Red King, and King Alphonso; 3, W. Stringer, with Mrs. Brownhill, Mrs. Holden, and Sir S. Smith; 4, G. Geggie, with Mrs. Holden, J. Turner, and George IV.

Class 21.—SINGLE POLYANTHUS, BLACK GROUND.—1, J. Lomas with Mayfield Gem; 2, J. W. Bentley with Mrs. Brownhill; 3, J. W. Bentley with Exile; 4, J. Lomas with Prime Minister; 5, J. Fillingham with Exile; 6, J. Fillingham with Mrs. Brownhill.

Class 22.—SINGLE, RED GROUND.—1, Mrs. Helen Young, Chorlton-cum-Hardy, with King Alphonso; 2, J. W. Bentley with George IV.; 3, J. Lomas with seedling; 4, J. W. Bentley with George IV.; 5, J. Lomas with seedling; 6, J. Fillingham with Sir S. Smith.

Class 23.—THREE DISSIMILAR (for growers not employing a gardener).—1, J. Lomas, with J. Burns, Mamie Scholes, and seedling; 2, W. Stringer, with Mrs. Holland, Mrs. Brownhill, and seedling; 3, Mrs. Helen Young, with Exquisite, Firefly, and Princess Ena; 4, S. Etherington, with George IV., Tiny, and Middleton Favourite.

PREMIER POLYANTHUS OF THE EXHIBITION.—Mr. J. W. Bentley with George IV.

CERTIFICATES were awarded to Mr. J. H. Wilson for self Auricula Miss Violet; Mr. J. W. Bentley for alpine Miss Vernon; Mr. F. J. Dickens for alpine Sam; Mr. G. Geggie for alpine Joyce Atkinson; Mr. F. Faulkner for alpine Ethel Faulkner; Mr. J. Lomas for Polyanthuses Mamie Scholes and Mayfield Gem.

National Auricula and Primula.

MIDLAND SECTION, APRIL 29.

The ninth annual show was held in the Exhibition Hall at the Botanical Gardens, Edgbaston, under the most favourable auspices. There was a large attendance of visitors. Last year the southern contingent was not represented, and upon the present occasion only by the Great Bookham expert, Mr. James Douglas; and Mr. W. Smith, Bishops Stortford. Mr. Douglas led with an almost incomparable complement in the class for eight show Auriculas, with Mikado, Mrs. Henwood, Amy Robsart, Abbé Liszt, Geo. Lightbody, Favourite, Charm, and Eucharis. The Rev. F. D. Horner followed with a comparatively good lot, comprising Shirley Hibberd, Mrs. Henwood (fine), Geo. Lightbody, Favourite, Dr. Horner (fine), Orpheus, and Maggie. Mr. W. M. Shipman, Altrincham, was third, whilst Messrs. W. Smith, Bishops Stortford, Charles Winn, Selly Park, Birmingham (gardener T. T. Sheppard), followed in their respective order. In the class for six show varieties, Mr. Douglas also scored; second, Mr. C. Winn; and third, Rev. F. D. Horner. In the class for four varieties, Mr. W. H. Parton, Kingwood Grange, Hollywood, led with excellent examples.

MAIDEN GROWERS.—For two show Auriculas, first, Mr. G. D. Ford with two seedlings, a green and a grey edge; second, Mr. H. W. Miller, with Acme and Cleopatra.

LOCAL GROWERS.—Three show Auriculas, first, Mr. C. Winn, with Shirley Hibberd, Mrs. Henwood, and Favourite, all in very good form; second, Mr. W. C. G. Ludford with Letitia, Ruby, and Mrs. Henwood; and third, Mr. I. Eglinton.

Alpine Auriculas.—These were in strong force. In the class for eight, dissimilar, Mr. Douglas was again in the van, the varieties being Argus, Teviotdale, Jacoby, Mrs. J. Douglas, Olivia, Phyllis, Rover, and J. F. Kew; second, Mr. C. Winn, with Firefly, Mrs. Danks, Thetis, Blue Bell, General Buller, Argus, and J. F. Kew; third, Mr. Eglinton. For six, the leader was again Mr. Douglas, with Rosy Morn, Flora McIvor, Teviotdale,

Lady of the Lake, Mrs. James Douglas, and Argus; second, Mr. C. Winn.

Seedling show Auriculas.—For two varieties, the Rev. F. D. Horner won for Geraldine and Sunrise; second, Mr. W. Smith. For one plant, green-edge, Mr. Horner, first, with Orient; second, Mr. C. Winn, with Mrs. Sheppard. For one grey-edge, Mr. W. Smith, with Stately; second, Rev. F. D. Horner, with Grey-lag. For one white-edge, first, Mr. E. Danks, with a seedling—the only exhibit. Mr. Douglas annexed the society's silver spoon prize for the Premier show Auricula with Orient, a very fine yellow variety. For the Premier in the seedling classes he won with Harrison Weir, a bright rich red self.

First-class certificates were awarded to Mr. James Douglas for the subjoined varieties:—Vanguard (dark self), Orient (yellow self), Harrison Weir (red self), and Mrs. James Douglas (light centre, alpine). To Mr. C. Winn, Selly Park, for Mrs. Sheppard (green-edged). To Mr. W. H. Parton, Hollywood, for Jack Parton and Mrs. Parton (both gold centred alpines).

Premier blooms.—To Mr. James Douglas for Geo. Lightbody. To Mr. C. Winn for Mrs. Danks (alpine). To Mr. W. H. Parton for Jack Parton.—W. G.

Croydon Horticultural Mutual Improvement.

SPRING SHOW.

The eighth annual spring flower show of this society was held at the Horniman Hall, Croydon, on the 6th inst. The committee have in view the fostering of a love of horticulture in the minds of all, and through the generosity of the society's supporters, are able each year to give free admission to the general public. In return for such a kind invitation, it is needless to say the number of visitors attending is very great, and from the time the show opens at three o'clock, till its close, about ten p.m., the hall is full. No prizes are offered to the exhibitors, so that they are indeed to be complimented for the enthusiasm they display in making the affair a success. From the gardens of the president, Mr. J. J. Reid, came a grand exhibit of Schizanthuses, Azaleas, and Mignonette, reflecting great credit on his head gardener, Mr. F. Oxtoby. Mr. J. Pascall's gardener, Mr. A. Edwards, had a miscellaneous group of plants, including well-grown Calceolarias and double Cinerarias. Mr. C. Lane, gardener to Mr. E. H. Coles, Caterham, put up some good Hippeastrums and Caladiums. In one corner Mr. J. J. Pittman's gardener, Mr. A. Dyer, staged an effective exhibit of Cineraria stellata, Cyclamens, and white Stocks. Sir Walpole Greenwell sent cut flowers, including double and regal Pelargoniums, Cyrtipediums, and two fine sprays of Cymbidium Lowianum, which his gardener, Mr. W. Lintott, very effectively arranged. A very fine Azalea came from Mrs. Matthews' garden, Anerley, and her gardener, Mr. C. Thrower, evidently knows the cultivation of this class of plant, for it was a mass of flower, measuring about 2ft 6in in diameter. A pretty exhibit was made by Mr. Wateridge, gardener to Mr. Otto Hehner, with Cineraria stellata in good colours. Mr. Frank Allen's Spiræas and Hippeastrums were also much admired, and the society welcomed a new exhibitor in his gardener, Mr. Beacon. Two cottagers contributed exhibits: Mr. J. R. Filce bringing some well-grown Auriculas, and Mr. R. Cleveland a collection of cacti.

The trade was well represented. Messrs. J. Peed and Son had a collection of alpines arranged in boxes, and adjoining, a few Carnations made an interesting exhibit. Alpines were also shown by Mr. J. R. Box, whilst the firm of Messrs. J. R. Box and Co. staged cut blooms of Tulips and Narcissi. Mr. P. Chaff arranged a miscellaneous group of plants, and the stage was tastefully decorated by Mr. T. Butcher. Messrs. E. W. and S. Rogers had a table of Hyacinths, including the best varieties, all of them being very fine trusses.—B.

Scottish Horticultural.

ALPINES.

At the monthly meeting of this association, held at 5, St. Andrew Square, on the evening of Tuesday, the 5th inst., a very interesting paper on "Alpine Plants" was read by Mr. W. Austin, of Comely Bank Nurseries. Mr. Austin commenced his paper by a glowing account of the pleasures of alpine plant growing, noticing its increasing popularity, which was certain to continue. He devoted his paper to the points requiring careful attention in a number of more difficult subjects. He detailed with much interest the cultural needs of some of the finer Saxifragas, such as Buxeriana and B. major, longifolia, and diapiensoides; also Gentiana verna, Primulas scotica, ciliata, and involucrata; Ramondias, Azalea procumbens, Silene acaulis and its varieties, some Sedums, Lithospermums, and many others. It was pointed out that lovers of alpines had a splendid object lesson in the beautiful collection at the Edinburgh Botanic Gardens, which was always open for inspection. The paper was well received, and an interesting discussion followed, taken part in by Mr. Hay, Hopetoun Gardens; Mr. Grieve, Mr. Morris (who had at one time charge of the beautiful collection at Faldonside), Mr. Comfort, and Mr. Whytock, the president. A question was asked by Mr. Richardson as to

Bryanthus erectus, a hybrid raised at Comely Bank Nurseries, between *Menziesia cærulea* and *Rhododendron chamaebuxus*, being found wild in Siberia, but no authentic record of this has been found. On the motion of Mr. Massie a very hearty vote of thanks was awarded to Mr. Austin.

An interesting account of the recent great quinquennial show at Ghent was given by Messrs. Whytock, Massie, and Todd, who had been visitors at Ghent. The members were much pleased with their information.

The exhibition table was gay with interesting exhibits. Mr. John Downie contributed fine plants of the new pink *Spiræas*, *Peach Blossom* and *Queen Alexandra*; also fine plants, well bloomed, of their select strain of erect blooming *Gloxinias* (highly commended). Messrs. Grieve and Sons, Redbraes, showed *Cattleya citrinus* and a number of fine *Cypripediums*, including new hybrids (highly commended). Mr. Hutchison, Ayton, showed capital *Sweet Peas* in a number of choice varieties. Messrs. Cunningham and Fraser had a number of choice *Primulas* (including *Cockburniana*) and other alpinists; also blooms of *Narcissi* cut from plants naturalised in grass. Mr. Hay, Hopetoun, showed beautiful cut blooms of the handsome *Brunfelsia calycina*; and Mr. Comfort had a bunch of a very large flowering double white *Daisy*. Votes of thanks were accorded to the exhibitors.

At the next meeting a paper will be given by Mr. Harris, Inverleith Park, entitled, "Some Scientific Principles Governing Practice in Horticulture."—T.

The Franco-British Exhibition.

The Gardens.

The daily newspapers have kept the public well informed of the progress at the great Franco-British Exhibition at Shepherd's Bush, London. They have told us also of the general unpreparedness of the grounds, the paths, and the buildings, all of which is true. The features of the exhibition will not be fully prepared for a week or two yet; and Mr. Jaques, as superintendent of the gardens and grounds, has his hands full at the present time in many directions.

A visit on Tuesday afternoon of the present week, in glorious sunshine and warmth, showed us how far things actually had advanced. Messrs. Sutton and Sons, of Reading, and Messrs. Carter and Co., of High Holborn, London, are the two chief British firms who are making displays in the open air. Sutton's have already filled a large number of beds with their *Perfection Pansies*, their *Giant Mignonette*, also *Primula japonica*, *Polyanthuses*, and *Perfection Stock*, a fine bushy, double-flowered white variety. Naturally the heat was telling keenly upon some of these subjects, but they promise a succession of flowers throughout the summer. Glorious displays of their *Nemesias* are to be one of the main features. They have also sown the lawns around these beds.

Messrs. Carter's estimate that they have planted a million bedding plants, including *Geraniums*, *Fuchsias*, *Violas*, together with *Negundos*, palms, *Cordylines*, standard *Bays*, *Hollies*, *Magnolias*, &c., set about in the grass. In another part of the ground, between the beautiful buildings, they have miniature trial grounds for seeds. Already one can see the little plots where the various annuals have been sown. All are neatly kept. They have also sown lawns here and there.

Messrs. James Veitch and Sons, Ltd., Chelsea, have the contract to keep the Australian Court supplied with plants, but that, like most of the other buildings, is not complete yet. Messrs. Cheal and Sons, Crawley, we believe, have also done work at the exhibition, but we did not find their portion.

It would appear as though there is an opening for a flower, plant, and fruit stall or booth at the exhibition, but probably such an addition has already been arranged. Some of the larger trade firms, as *Schweppes*, *Burgoyne's*, and others, have very prettily decorated their buildings. *Burgoyne's* bungalow is draped with *Vines* and *Ivy*; while the sandstone rocky base on which it is built is planted with flowers. *Sempervivums* were seen growing in patches upon the roof of another building.

Indeed, flower borders and cool patches of grass are abundant. The *Henry Jacoby* and *King of Denmark Geraniums*, with blue *Violas* and *Marguerites*, seem popular. Groups of *Rhododendrons*, *Lilacs*, *Aucubas*, and other shrubs are also numerous—all of them crying out for water. Planting is still being carried on, and a good deal of turf has been laid during the last week. We observed a considerable quantity of dead shrubs about, including some large standard *Bays* in tubs. The large trees, to which we alluded in February, have done very well, and are now breaking into leaf. Less than ten per cent. have died. Middlesex red gravel has been used as a surfacing to the paths, and affords a rich, warm effect.

The French nurserymen are more numerous, evidently, than the British. Thousands of *Roses* have been planted in beds by MM. R. Goyer, Limoges (who also has *Clematises* trained to tall oval wire frames); and J. B. Guillot and Sons, Montplaisir, Lyons. The *Roses* are planted very thickly, have been hard

pruned and heavily mulched, and are growing very strongly. They ought to furnish one of the great sights of the exhibition. Beds of bearded *Irises* are also promising. Near by, there are sunken gardens, done out in French geometrical patterns in Box, the beds being sown to grass, thus contrasting with the rich red gravel paths. The sloping banks and edges contain *Viola* beds.

Lastly, we would call attention to the long borders of fruit trees parallel, east and west, with the walls of the Machinery Halls. *Pyramids*, bushes, cordons, *palmette verrier*, *gridiron-trained*, and other forms are here. All are well planted, and are certainly carefully staked and trained, but many are slow in pushing growth. No wonder! It must have been quite a feat to bring huge *gridiron-trained* *Pear* trees from France to London, many of the trees being 7ft to 8ft wide, and 12ft to 15ft high. The exhibition authorities tried hard, we believe, to induce some English fruit nurserymen to make a model garden, but the conditions evidently did not tempt our folks. Those who display these fruit borders are MM. Pinguet Guindon, Tours; Nombrot-Bruneau, Bourg-la-Reine, Seine;



The Orchard Beautiful.

Louis Leroy, Angers (also *Roses*); and Lecoigne, à Louveciennes. M. Ad. Rothberg, Gennvilliers, contributes beds of *Roses*.

Throughout the grounds there is plenty of ornamentation, in which stucco vases filled with *Phormiums*, palms, &c., occupy a considerable part. The largest of the bandstands is sunk in a deep circular arena, whose upper banks are covered with *Ivy*, and has an outer border of flowers. This arena has 1,000 garden seats within it, these being supplied by Messrs. Wrinch and Sons, of Ipswich.

Altogether, horticulture plays no inconsiderable part in this huge exhibition, said to be the largest ever arranged in England. It was rather incongruous, however, to see specimen *Cordylines*, notable Australian plants; as well as choice conifers, native of China and North America, boldly taking their place in the scene of a "typical Irish village," with its picturesquely dressed colleens, which forms one of the many side shows.

An Orchard Scene.

How beautiful our orchards may be is well exemplified in the Springtime scene pictured above. One of the chief charms of the English rural districts is the frequent appearance of picturesque orchards; albeit they are often sadly neglected in a cultural sense. But the cult of beauty need not necessarily be divorced from the cult of fruitfulness. How well harmonised are the white *Narcissi* with the white flowers of the *Apple tree*! Or *Cherries*, or *Siberian Crab*, and other ornamental trees that flower at this time would yield the same pleasing results. This phase of gardening is being yearly better understood, and more attended to.

Young Gardeners' Domain.

•• The prize is awarded to Mr. H. Branch, Dees, Lingfield, Surrey, for his letter hereunder:—

Strawberries from September to Christmas.

Retarded Strawberries, although not often met with, form a pleasant and novel dish for the dull months of the year, especially for shooting parties during October and November. The best variety for giving a good supply of nice fruit during this season is the St. Joseph. Plants should be layered into 3in pots at the end of August or beginning of September, following the varieties used for ordinary forcing, selecting good strong runners. After the layers are well rooted they may be cut from the parent plant and be placed together, paying careful attention to watering, so as not to let them get too dry. Do not put the plants into larger pots at this stage, but plunge them up to the top of the pot in fine ashes, any flowers or runners being pinched off. This situation will suit the plants all the winter, and they will require no further attention till they begin to dry and flowers appear in the spring. These must be pinched off, and the plants kept well supplied with water.

In the following July or August, preferably July, the plants should be potted into 5in or 6in pots, using a fairly heavy compost with plenty of bonemeal. When the potting is finished stand the plants in a good level position on a bed of ashes. Watering will now require careful attention, as the plants, having been root-bound in the small pots for so long, will soon fill the pots with roots. Keep the pots turned once or twice a week to prevent the roots penetrating the ashes they are placed on. An occasional watering with soot water and liquid manure will now be very beneficial. If fruit is not required till October continue to pinch the flowers off until the beginning or middle of September.

At the end of September house the plants, and sprinkle a little fertiliser on the tops of the pots. Place the plants on shelves in a position so that they can get plenty of light. A rather dry house with a day temperature of 50deg F. and 40deg at night will be found most suitable. As the fruit ripens and the days get dull and colder, great care should be exercised as regards watering, not to get the plants too wet, as the fruit soon goes off. Strawberries grown this way have a pleasant flavour and attain a fair size.—DEES.

Begonia Gloire de Lorraine.

Cuttings may be inserted from February until June, though cuttings inserted in April generally make the finest plants, as they are then tender and vigorous. When inserted in cocoanut fibre and sand they root readily in a propagating frame, having bottom heat 70deg to 75deg. The lights can be removed daily for about one hour to purify the atmosphere, then spray cuttings and close the frame. When rooted pot off into 60-sized pots, using cocoanut fibre, peat, leaf mould, loam, and sand, passed through a half-inch sieve; then return the plants to the close frame for three or four days. By this time they will have recovered from the slight check caused by potting; now they may be grown on in the propagating house, having a temperature ranging from 68deg to 70deg at night, 70deg to 75deg by day. They will require shading from the sun. In the course of a few weeks they will be ready for potting into 6in pots, which, for general purposes, is undoubtedly the most serviceable.—J. MOORE, Holyhead.

Malmaison Carnations.

Malmaisons are among the choicest and sweetest flowers we have. They should be grown in the greenhouse, or better still have a house for themselves. They can either be propagated from cuttings or layers. Cuttings should be inserted in a close frame about the end of May. As the cuttings commence to root admit air gradually. After the cuttings are well rooted, pot into 3in or 4in pots, and place them in a cold frame for the winter. Layering, I think, is the best method of propagation; and the great point in layering is to cut your slip as near the point of the layer as possible. By doing this one gets nice strong plants. Layer about the beginning of July, and these will be ready to sever from the parent plant by the beginning of August. They may then be potted into 3in or 4in pots, and be placed in a cold frame for the winter. The frames will require to be covered with mats to keep out frost. By the beginning of February the plants will be ready to be potted into 6in pots. Particular care must be paid to watering. In a few weeks they will require staking and to be placed in their flowering quarters. Admit all the air possible while the plants are in a growing state. When the pots get filled with roots occasional waterings with liquid manure from the farmyard and guano will be found very beneficial. When the plants come into flower they will require to be shaded from bright sunshine.

If there is a house for Carnations only then the best plan would be to put blinds on it, which could be pulled up and down as required. Allow only one flower to be taken off a plant in a 6in pot, pinching all others as they appear. After the plants are past flowering cut back the flower spike and they will make excellent plants for the following season. They will require to be potted on into 8in pots by the middle of October. A compost of the following will suit them admirably: four parts good fibrous loam, one leaf mould, one farmyard manure, and one of mortar rubble. As the plants commence to grow they will require staking and tying. Malmaisons, like all other plants, are troubled with insect pests and diseases, so they must be closely watched. Rust and spot are the two worst diseases, and the best cure for them is to cut off the affected leaves as they appear. The most troublesome of insect pests is green fly, but an occasional smoking with XL All will help to keep the plants clean.—WM. SMITH, Douglas Castle Gardens, Lanarkshire.

The Progress of the Young Gardener.

I have read with much interest the letter "The Progress of a Young Gardener." He really is influenced by his surroundings and by his equals, and more so by his superiors. Many a lad has an ambition for thorough gardening when he makes a start, say from fourteen to sixteen years of age; but soon he falls into the way of "That'll do," "That's near enough." Why should he do this? To me it seems that the majority of lads are spoiled by the dogmatic manner in which they are treated. If gardeners would be firm but fair, they would be less troubled with their journeymen. Again a journeyman that has been for several years at work in similar establishments goes to a place under a gardener who appears to him to have little practical experience; theory he might have. Can we expect that journeyman to take interest in his work? Where men are contented, thoroughness more often follows than where the fellows are always in "hot water." We should all cultivate more true toleration. Our bothy arguments will then be more interesting, as it will allow our younger ones to speak without fear of being asked, "What do you know?" Our lads of to-day are the gardeners of to-morrow, so give them a helping hand, and we shall not hear of so many half-hearted ones in the ranks.—A. H.

Book Canvassers.

I should like, through the pages of the *Journal*, to add my experiences of book canvassers, about whom "Sussex" was writing in the issue of April 16. He asks for more favourable experiences with such gentlemen, but alas! I am afraid there are too many of us juniors who have been misled by them to give very favouring accounts of their conduct. My experience has not been quite so drastic as that of "Sussex"; but quite bad enough. When I was just starting in the noble art and craft, of course, like most young gardeners, I wanted to learn everything in about a week. While I was in this fever, as it were, I remember, to my sorrow, that one day a very benevolent looking gentleman approached our chief, and asked to be allowed to canvass us young ones. This gentleman first interviewed one of my fellow workers, who did not see his way clear to give an order, but I found out after that he told the bookman that he would not give an answer until he knew what I would decide. The man then came and talked to me about this wonderful book, and its cheapness, and other merits. He pointed out in very glowing terms that it would cost next to nothing almost (he found out that my pocket-money was nearly nil). After he had told me all about it, and I had given him a refusal, he said "Why don't you have one; your friend over there," calling my mate by name, "is going to have one. He is taking it in the parts, with gilt edges and leather binding," which I found out to be untrue. I thought it over, and at last came to the conclusion that I could have the book as well as my companion. Then this gentleman pulled out his order book and held it for me to write my address in. He did not let me see the other part of the sheet, as the excuse was he must hold it for me to write my name. This land-shark then went back to my companion and told him I had decided to subscribe to the book. This chap was thus gulled into buying a book as well as myself, without our comparing notes. Of course, the gentleman was most civil and polite after that. Well he might be, to think how he had fooled two greenhorns.

After a few days the first part of the book arrived. I sent my first subscription along by return of post. In about a week after another book came. This frightened me, as I could not raise the money so soon, and the canvasser told me I was to receive a book every quarter. So I wrote to the firm, who I think almost as bad as their agent. By return of post I received a type-written letter telling me that they would put the matter into their lawyer's hands to deal with me. I then wrote back to tell them they could send as many books as they liked, I should only subscribe each quarter. All went well after this until I had taken the eight parts, when I was informed that there was a supplement now issued. I wrote and told them I should not take it, as their representative had stated that the

number was eight volumes, and I had agreed only to take that number. Again I received a lawyer's threat, together with a copy of the order that I had signed. I found that I had signed to take the volumes until the complete work was ended. I can now see why the bookman hid this part with his hand. I could not see my way out of it, so I had to go on subscribing to another four volumes. I am glad to say I have now finished. That book has been a perfect bugbear to my life for several years. I felt like a slave under a heavy yoke. My horror was that I should be thrown out of employment and be unable to pay my way. I look upon that canvasser as the cause of my misery, who, by his lying tongue, had gulled me into signing away, as it were, my happiness and my hard earned money for several years. I am not going to find fault with the books, as I find them most useful, and am glad I have them now. But the wound is still open, to think of my past misery over them. I am writing my experience of the book representative, as I hope to impress upon young fellow readers of "The Domain" to fight shy of these gentlemen, and be sure not to get into their clutches if possible. I do not want to injure trade, or any honest persons, but I think it would be an act of kindness, if not duty, towards young men employed in gardens if the head would send such gentlemen about their business.—ESEX.

Caladium.

For fine foliage for house and exhibition work few plants can surpass the Caladiums. February to March is the best time to start them. Take them from under the stage where they have been at rest; give a good soaking the day previous; shake them out, and pot up into 60's or 54's, according to the size of the corms. For this potting use two parts fibrous loam, one part peat, one of leaf mould, some sand, and some charcoal to keep the compost open. Place the plants in a light position near the glass. In applying water at this stage exercise great judgment, for if kept too wet the corms are likely to decay. When they have made the first leaf they require to be potted into larger pots, such sizes as 5in or 6in will be large enough to produce a first-class Caladium. At this potting the compost may consist of three parts fibrous loam, one of fibrous peat, one part leaf mould, with plenty of sand, adding charcoal also. Do not pot firmly, as the roots penetrate into a loose compost more freely. A stove is a suitable house, where a moisture-laden atmosphere can be maintained. This helps to bring the colour into the leaves; but do not syringe the plants, as it has a tendency to mark the leaves. Shade them from sunshine, as they are apt to scorch, and only admit air on favourable occasions. When they have filled the pots with roots, liquid manure will be helpful in obtaining a good top; cow manure and soot water are both good. When they have done growing it will be thought fit to remove to the conservatory. Previous to doing this they should be placed in a house a few degrees less than the stove, as this gradually hardens them and helps them to become accustomed to their cooler quarters. When the foliage begins to decay in August or September, remove to a warmer house, and gradually withhold water. Put them in the lightest and sunniest place, as this is essential for the ripening of the corms; they will then also produce stronger plants next year. A few good varieties, which are worthy of a place in any collection, are: Alcibiade, C. E. Dahle, Chantini, John Peed, Lady Mosley, La Perle du Bresil, Roncador, Mr. C. J. Pierpont Morgan, Purvis de Chavannes, Salvator Rosa, Sir Oswald Mosley, Sir Wm. Broadbent.—J. F. H., Nottingham.

The Wild Garden.

The wild gardens of some of the large estates form a very striking and pleasing feature to visitors at almost any season of the year. I see no reason why a wild garden should not be included in almost every place. It is very simple, and can be made beautiful at small expense, particularly if the ground includes a few hillocks and a small stream of water running through it. Expense is then reduced to a minimum. Beds must be dug and be well trenched to start with, but should always be of an irregular shape, with grass paths between them. These can be filled with any herbaceous plants that are vigorous and roam at will. The common Honesty is a flower that is admired by all, and will thrive in the wild garden splendidly. Tree stools that have been grubbed can be brought here and placed with their roots uppermost in large heaps, with a few loads of soil tipped over them. Foxgloves can be sown here, or Antirrhinums, or Forget-me-nots, the latter in the early spring having a grand effect. Polyanthus should not be forgotten, and bulbs of all kinds can be planted in their thousands. It is a good plan to place boughs of trees about 3ft apart in the ground, and put Roses of the rambler type to trail among the branches. Fir posts can be placed with the branches cut about a foot from the stem, for the same purpose. I have seen these covered in one year. The water can be covered with Nymphaeas of all descriptions. They should be put in old baskets filled with soil, and be sunk where they are intended to bloom. If there are any swans or waterfowl about, the plants must be wire-netted in, or the foliage will be pecked off as soon as it

appears. Irises can be grown on the banks; and Willows of the weeping variety will look very graceful. A small rustic summer house will greatly add to the pleasures of the wild garden. I have only mentioned a few items concerning this subject, but in all cases the main object is to furnish a pleasing natural effect.—W. E., Chertsey.



The Gardener and the Bee.

There can be little doubt that every gardener ought to be more or less a bee-keeper. Many may ask, Why? The reason is not far to seek. Bees, flowers, and fruit are very intimately associated in our minds, or perhaps better, bees and flowers are, but then we think of the fruit and seed. Nature has provided flowers, for some good reason, with nectaries (i.e., organs for secreting a sweet juice), whose sweet juices yield a sweet odour, which, in the opinion of many eminent scientists, helps to attract the bees to them; no doubt the colour of the bloom plays a part, too, in attracting the insects. The flower has something to give to the bee—its food; but then, here, as in most matters, there must be a certain amount of "give and take."

The bee can perform an office for the flower. The bloom must be fertilised, either by an insect or by the wind. It is only in those cases where Nature produces pollen in great profusion that wind fertilisation is possible; therefore, the greater part of the process of pollination must be performed by insects, and the insects in most instances are hive bees, at all events in the case of most fruits. We have only to examine a bloom to be convinced that insects were intended for the work. Look at the arrangement of the flower, and there we see the pollen so placed that the bee must brush by it with its hairy body in order to reach the much-coveted nectar at the base of the flower. The ripe, sticky stigma, well protected from the rain, is so situated that it, too, rubs against the pollen-dusty body of the bee whilst it is striving to reach the nectar, and thus the bloom becomes fertilised, and generally cross fertilised, i.e., the pollen has come from some other tree or plant of the same kind. Nature does not believe in self-pollination, for the stamens are rarely ripe or ready to shed their pollen when the stigmas of the same bloom are sticky or in receptive condition. It is interesting to note that in some cases the stigmas are only in a receptive condition for a few hours, whilst in others this state may continue for a few days; further, some plants have the power of rejecting their own pollen should it be supplied by insects.

Wherever fruit farms have been established, and apiaries placed in their midst, these have proved the most successful. The same has been the case in the great seed-producing districts. In the case of fruit farms it has not mattered whether they have raised small fruits, as Gooseberry, Raspberry, Strawberry, &c.; or the larger fruits, as Apples and Pears, the results have invariably been the same. We are all acquainted with the large number of Apples that fall during storms of wind. If these be carefully examined at least 80 or 90 per cent. of them, the pips on one side, if not all, are not plumped or developed, but are simply husks. Why? The bloom has been imperfectly fertilised, for every Apple bloom requires to have five distinct fertilisations to produce a perfect fruit, and when Apple and Pear orchards are in bloom, few insects, except the hive bee, are on the wing, hence the great need of an established apiary in an orchard. A wet spring, not necessarily a frosty one, is generally succeeded by a bad fruit season, for the self evident reason that the bad weather has detained the bees in their hives, and fertilisation has not taken place.

We may cite one more and very interesting illustration of the number of separate fertilisations that are necessary to produce a perfect fruit, and that is in the case of the Strawberry. It has been calculated that somewhere between 180 and 250 fertilisations are required. Watch a bee travelling round a bloom on the Strawberry, and you will be interested and convinced. The imperfection in the fruit, shown by a hard green piece, is caused by the imperfect pollination of the bloom. There is another side to this important question, and that is one of economy, apart from the fertilisation of the bloom. Think of the loss sustained if no bees be kept to gather and store the large quantity of nectar there is in the flowers of our gardens and orchards. Those fruit growers and jam makers, who are also apiarists, have large quantities of honey for sale, sometimes reaching 4,000lb to 5,000lb, in addition to a largely increased crop of fruit. Much could be said about the self sterility of certain kinds of Apples, which may be corrected by planting other kinds which will produce pollen at the right period for these shy bearers.—HYBLA.



Fruit Culture Under Glass.

POT FIGS.—The earliest trees of the St. John's type will now have finished ripening their fruits, and should be given less warmth and more ventilation to build up good wood for next season's fruiting. At the same time do not encourage grossness. This should be checked, and the energies of the tree devoted to perfecting the shoots which will produce the fruit. A good mulch or top-dressing of decayed manure on the surface roots will assist the latter, and also prevent excessive dryness. Early next month these trees should be plunged in the open, but before this is done they must have been freely exposed or well hardened, as the foliage soon scorches, and it must be kept good till the autumn.

OTHER VARIETIES, such as the Brown Turkey and kinds which produce a second crop, require different treatment, and these trees will have made a good second growth whilst maturing the first crop of fruit. Maintain a genial temperature, say 60deg at night and 10deg higher by day, with a free rise by sun heat. Close early, and damp all parts of the house thoroughly at closing (the trees also) till the fruits are well advanced. Trees in small pots will require liquid manure in a clear state once a day. Do not attempt more than two crops; by this I mean do not allow any small Figs to remain when a sufficient second crop has been secured. Regulate the growths to get a well balanced head, allowing the smaller shoots free play, as from the terminal bud some of the best fruits next season will be obtained.

PERMANENT TREES IN BORDERS.—Here the Brown Turkey, Osborn's Prolific, and White Marseilles will be mostly grown, and trees with heavy crops of fruit in a restricted border will require liberal supplies of food, and the same advice given above as regards mulching is applicable. Close stopping of gross shoots should not be overlooked.

TREES ON BACK WALLS.—The Fig is often grown at the back of fruit houses, and excellent results follow if they get enough light to mature the wood. At the same time do not crowd the wood so that the sunlight cannot reach the lower parts of the tree. I have obtained splendid crops of Negro Largo, Castle Kennedy, and Dr. Hogg's Black from wall trees, not forced hard, and the wood given space, and planted in a narrow border. Grown thus, grand fruits are obtained in July and August.

LATEST SUPPLIES.—Few fruits can be retarded so well as the Fig, and Negro Largo is one of the best for a late crop. But to do this, the trees must now be kept as cool as possible. Having been placed under a north wall, and not fed in any way, the trees being housed in July, August, or September, according to the dates the fruits are required, will give very late fruits indeed. By having two sets of trees, fruits may be had well into December. The latest trees should be prepared specially for this work. I prefer rather small trees and pots for the latest supply. Cut these back early in the year; grow on with close stopping, and they will give very good crops this season if the new wood is matured.—G. W., Brentford.

The Kitchen Garden.

THINNING CROPS.—Such crops as Parsnips, early Carrots, Onions, and early Turnip-rooted Beet should now be thinned as they become large enough. As I write, the weather is very favourable to all garden crops, and thinning should be done at the earliest possible date. Such crops as mentioned soon become crowded at the present season, and consequently take much harm.

PRICKING-OFF.—Such things as Cauliflowers, spring-sown Cabbages, Brussels Sprouts, and such like plants should be pricked off as soon as large enough. Choose an open site, and give the plants ample room to grow. This will be a great advantage when lifting the plants for their permanent quarters, as a good ball of soil can then be secured with their roots, and in consequence they will feel the shift much less.

TURNIPS.—Make a good sowing of these to succeed those sown some time since. A good type is Snowball, which will be found as good as any for the present sowing. Those in frames may receive a slight dressing of sulphate of ammonia or nitrate of soda if the growth is not satisfactory. The lights should be removed on all favourable occasions.

VEGETABLE MARROWS.—Another planting can now be made. Any piece of spare ground will suit, provided the soil is made good by adding some well-decayed manure or rich soil.

The plants can be protected on cold nights, for it is not safe to leave any tender plant exposed till quite the end of the present month, or better still, the beginning of June.

AUBERGINES IN FRAMES.—Of recent years these have received more attention in the kitchen than was the case formerly. They can be grown quite well in frames if planted out. The Long-purple is the best for the purpose, and will be found much more satisfactory when planted out in frames than when cultivated in pots. The fruits are much larger and more tender also.

TOMATOES may also be planted out at the foot of a warm wall, but I do not advise planting for the general crop until the first and second weeks in June. It is a simple matter to place a light or two against the wall to protect the plants for a week or so, and thereby make them quite safe. Good strong plants should be chosen, and by preference those with a cluster of fruit already set at the bottom. The soil should be well cultivated, adding some good sound loam.

WEEDS are growing apace, and one is much puzzled how they are to be kept down at such a busy time, when so many other things claim attention. However, this must be attended to, and the hoe should be kept at work constantly. Walks may now receive a dressing of weed destroyer; afterwards the roller should be used freely to consolidate them.—A. T., Cirencester.

The Flower Garden.

LIFTING BULBS.—In many parts of the country work in this direction is now proceeding, commencing with the hardier subjects. Where spring bedding is extensively carried out it considerably interferes with the summer bedding, more especially when Darwin and May-flowering Tulips are in favour. With us these are just now at their best, which means that the beds will not be available for from two to three weeks at the earliest. Even when lifted none of the bulbs, Hyacinths, Tulips, or Narcissi, will be properly ripened. They must, therefore be carefully lifted and heeled in to finish ripening if expected to flower next spring, selecting a somewhat shaded position. The best medium for covering the bulbs is ashes, or failing this use light sandy soil. We use the ash-beds where a little later on many plants in pots are plunged. The bulbs may be placed fairly close together in the rows, but leave a good space between each sort to obviate any chance of mixing them when lifting in from three weeks to a month's time. Carefully label each variety.

SPRING-FLOWERING PLANTS.—When taking these up, a certain number must be kept for future use, either to divide and plant in the reserve garden or furnish cuttings. Wallflowers, Myosotises, Polyantheses, and others which are readily raised from seeds may be consigned to the rubbish heap. Some readers will most probably not agree with me in recommending the discarding of the Polyanthus, but having tried both methods, division, and raising the plants annually from seeds, I do not hesitate in recommending the latter method. Seedlings are much more robust and free-flowering than those propagated by division. If amongst the plants flowering this year there are any particularly good sorts, seeds can be saved from them. The following plants to be lifted and propagated by division or for cuttings should be lifted and placed carefully in baskets or boxes, not too thick, till they can be dealt with. Aubrietia, spring-flowering Phlox, Arabis, Double Primrose, Double Daisy, Saxifraga, Doronicum, &c. If placed in a shady position, under trees for instance, they will not harm for several weeks if watered occasionally.

SUMMER BEDDING.—In arranging positions for the plants, whenever possible, Cakcolarias, Fuchsias, and similar subjects, which are the first available for planting out, should be put in beds devoted to Crocuses, Hyacinths, and the earliest Narcissi, these being ready for lifting first. Previous to working on the beds mow the grass around them, and cut the edges. In digging work in some well-decayed manure and leaf mould. See that the balls of the plants are moist when planted, and water the beds as soon as completed.

ANNUALS.—Many seedlings which were raised in the beds and borders out of doors, where they are to flower, will be ready for thinning. A mistake often made is to leave the young plants too thick, thus spoiling each other. It is better not to thin finally the first time, but to go over them twice or three times as they grow. Any bare spaces should be filled by carefully lifting the young plants where they are too thick. Have a water-pot at hand to water them as soon as moved.

TREES AND SHRUBS.—The present is a very suitable time for pruning, thinning, and shaping evergreen trees and shrubs, Yews, Hollies, Boxes, &c. Where branches of any size are cut off, the wounds must be carefully finished off, and tarred over to prevent decay. Some of the newly-planted subjects will require water, especially those moved late, also specimens with large tops, which are likely to prevent the rain reaching the balls. Mulching with sheet manure is also advisable.—A. O., Kew, Surrey.



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EXHIBITING ASTERS (J.).—A box made of deal, and painted dark green, about 2ft long, 15in wide, 6in deep at the back, and 4in in the front, would be suitable for twelve blooms, tubes being inserted at regular intervals for holding water for the support of the flowers. Prizes are usually offered for both imbricated and quilled Asters. Consult the schedule of the show at which you intend to exhibit.

TREATMENT OF MIXED FLOWER BEDS (K. Y.).—There is no need to have the beds or borders deeply dug at any time, except when re-arrangement is necessary from the plants becoming too large. A top-dressing of some kind should be given in early winter, and it may be lightly pointed in with a fork in spring. The positions of the plants which die down in winter, also that of bulbs, should be indicated by a hard-wood peg placed by each, and then there is no difficulty in avoiding disturbing them when pointing over the surface, a loose surface being necessary, but the roots must not be disturbed, or as little as possible. Division should be done in early spring just when the plants are making fresh growth.

WINDOW PLANTS (A. C.).—Amongst the best of window plants are *Ficus elastica*, *Dracæna terminalis*, *D. gracilis*, and *D. congesta*, with such free-growing and ornamental palms as *Latania borbonica* and *Seaforthia elegans*. Any three of the above would be suitable for the first class you quote at your local show. Plants may be purchased at from 3s. 6d. to 5s. each, according to size. A single specimen flowering plant means a plant of good shape and well flowered. A good *Fuchsia* would be suitable for the period you name. Purchase strong and healthy plants in 5in pots, and grow them on liberally, stopping the shoots occasionally, and pinching off the flowers until within six weeks of the show. Your *Roses* are not to be depended on for the purpose required.

MAGGOTS INFESTING PEAS (Old Subscriber).—The "maggots" you describe are not members of the Insecta, but belong to the Myriapoda and the family Julidae, commonly known as *Julus* or "false worms" and as *Snake Millipedes*. Judging from the description we should refer them to *Spotted Snake Millipede* (*Julus guttatus* syn. *J. pulchellus*). They have no connection with the Onion maggot, nor are they likely to attack Onions unless in a state of decay, though they feed on both decaying and living animal and vegetable substances. They are, however, very fond of the germinating growths of Peas and Beans, feeding on the cotyledons, and also on the young underground stems, sometimes destroying the young plants so that they do not appear above ground. They are usually introduced to the ground in manure either in the egg or larval stage, and make their way to the Pea or Beans soon after they are sown. The pests have a strong dislike of soot. An application of soot and water, mixed in the proportion of two handfuls of soot to one gallon of water is successful in either killing or driving the millipedes away. Finely crushed nitrate of soda at the rate of 1½lb per rod, rather less than 1oz per square yard, is also effective. It should not be used so as to lodge in the axils of Pea-plant leaflets or wings. Place it on the soil about the plants while the ground is damp, so as to insure the speedy dissolving of the nitrate and its passage in solution down to the millipedes. The pests may also be drawn from the Peas by inserting slices of Mangolds just within the soil or covering them lightly with a little litter, examining them daily and brushing off the millipedes into a vessel of hot water. Rape cake will also attract the pests from the attacked crops, and they may then be dosed out of existence by the nitrate of soda dressing. We do not see any reason why the plants that are now fairly healthy should not grow and produce satisfactorily, they being helped by the dressing of soot or nitrate of soda.

BIRDS v. BLOSSOMS (R. A. C.).—You can do nothing now the damage is done. An article on the subject will appear next week.

PLANTING DAHLIAS (Treatment).—The plants have probably been insufficiently hardened off. Place some protective covering over them at night, as a large flower pot or a handlight. In a week or ten days they will have passed their critical stage.

VIOLAS DYING (R.).—It would seem as though your plants have been stewed. When *Violas* are fairly large and sappy, and are planted out at this season, the sun striking upon them sometimes so injures the growths that they collapse. This especially happens when the plants are watered while the sun is shining on them, a state of "stewing" then occurring.

SLUG-WORMS AND GRUBS (Rosa).—These must be hunted for and killed by crushing them between the finger and thumb as they lie in the leaf. One can get over a large number of plants in quite a short time. The leaf-rolling sawfly is rather troublesome in places this year, and must be treated in the same way. Keep the syringe or hose vigorously applied also, as this will clean the foliage of insects or fungi.

MANURING SWEET PEAS (Anxious).—There is a danger in overdoing the doses of artificial manures, particularly such as Clay's fertiliser, or sulphate of ammonia. These first of all force growth too much, so that the stems of the plants do not become properly solidified. Such plants cannot yield the best returns, either in quality or quantity. They also burn the rootlets if too heavily applied. A handful per square yard once a week is a safe application.

SEEDS NOT GERMINATING (Annual).—A little more patience may be what is needed; but with seeds that were sown two to three weeks ago, particularly of those you name—*Chrysanthemums*, *Salpiglossis*, and *Nemesias*—there ought to be signs of the seedlings. Such fine seeds as those of *Salpiglossis* require a nice powdery seed-bed and ought simply to be lightly raked in. A sowing in a shallow pan (very thinly sown) might be made, and the seedlings could then be set out when large enough, which would be in three weeks.

FIGS IN POTS CASTING FRUIT (A. B. C.).—It is difficult to secure very early crops of Figs from trees in pots without the aid of bottom heat, as the temperature and moisture are not sufficiently equable—a check of any kind causing the fruit to drop. From the very vigorous growth the trees are making we think the pot room is excessive; they are probably being grown at too great a distance from the glass, or perhaps beneath Vines. Stop the shoots and afford plenty of light, for without stout short-jointed wood it is needless to expect fruit. The temperature is too high at night, 60deg to 65deg being ample.

LIFTING AND STORING TULIPS (T. P.).—The bulbs used for bedding purposes are usually lifted at the end of May or early in June with as much soil as may adhere to the roots, and then plant again in reserve beds, commonly termed laying-in. Choose a north border, but not shaded or overhung by trees, full light being all important. The conditions should be moist, not wet. In these quarters the bulbs should remain until the foliage turns brown and the stalks become limp. Then they should be lifted and placed in a cool airy place, not in the sun. When thoroughly ripened they should be divested of all dirt, leaving, however, the brown thin envelope, and stored in drawers or bags, where provision can be made for air circulating amongst them. It is a good plan to dust the bulbs with flowers of sulphur as a check to the disease that in recent years has been so prevalent in Tulips, the dusting being done at the time of storing. From the description you give of the bulbs last year being shrivelled and useless, we should say they were affected with the disease known in the conidial stage as *Botrytis parasitica*, and in the sclerotia or resting stage condition as *Sclerotinia parasitica* syn. *S. tulipiarum*. All such bulbs should be destroyed by fire.

NAMES OF PLANTS.—Correspondents whose queries are unanswered in the present issue are respectfully requested to consult the following number. (M. L. G.).—*Piptanthus nepalensis*, the *Nepalese Laburnum*. (Reg., North Wales).—1, *Aspidodelus luteus*; 3, *Orchis foliosa*; 4, *Corydalis aurea*; 7, *Epimedium pinnatum*; 8, *Veronica gentianoides*; 9, *Prunus Padus*, the Bird Cherry; 10, *Cineraria maritima*. Others next week.

Trade Catalogues Received.

Clibrans, Altrincham.—*Violas* and *Pansies*.

Geo. Cooling and Sons, Bath.—*Roses*.

Wm. Paul and Son, Waltham Cross.—*Roses*.

John Peed and Son, West Norwood, London.—*Begonias*, *Caladiums*, *Gloxinias*.

Charles Turner, Slough.—*Dahlias* and *Chrysanthemums*.



The Journal of the Board of Agriculture.*

We have been much interested in reading this monthly volume, and although we cannot agree with every statement contained therein, we think it should have a place in every farmer's house. The price per volume is fourpence, not including postage; and we are afraid that few farmers will care to pay four shillings per annum for it unless they are already acquainted with it, and know its value. The April number runs to eighty pages, and is full of agricultural statistics and discussions on farming matters, written by persons of acknowledged eminence and skill.

We do not know how much the publication of this "Journal" may cost the country, but we imagine it will be a considerable sum, and it will be wasted if it does not get into the hands of the people who it is intended to benefit.

The opening article is by Mrs. Roland Wilkins on the creation of small holdings under the Act of 1907. Mrs. Wilkins shows conclusively how small holdings may be made successful, but she also proves that the local conditions which will ensure success are not easy to find. She says: "If a living has to be produced off a small area (1) this area must be relatively very productive, or must produce crops for which relatively large cash returns are obtainable"; or (2) "there must be some means of supplementing the actual return from the land itself." This second condition involves the *reductio ad absurdum* that there is not a living to be made from a small holding, and we come back to our old argument, many times repeated in this column, that under the average conditions of rural economy in England the small holder has a very poor prospect of paying his way unless he has as neighbours two or three large farmers who are able and willing to help him over any stile which he cannot climb unaided.

Mrs. Wilkins mentions as supplements to the land itself (1) the existence of common rights or co-operative grazing ground; and (2) surrounding agricultural conditions affording piece work at dyking, quarrying, or work in woods, the existence of special local trades, or the proximity of mines or factories. Under such conditions the small holder would be competing with other workers, who would labour under disadvantages from which he would be free. Besides these special conditions only occur here and there, and nearly all the success claimed for small farms is due to the proximity of good markets for their produce.

Mrs. Wilkins gives three conditions for small holdings to be self-dependent and successful: (1) good land; (2) a forward climate; (3) the vicinity of a good market—but points out that success has occurred where only one of these conditions has been present. She acknowledges that in many parts small farmers are antiquated in their methods, which she would not care to see perpetuated, and refers to these districts as "the less prosperous parts of England." We are sure that any intending small occupier should read this article carefully, for they must see, if they read it, that there are many difficulties to overcome. They will perhaps notice that Mrs. Wilkins makes no reference to the necessity for hard work. As the Chicago pork packer wrote to his son: "Our young men can do a good line in lard without pigs, and potted chicken without any assistance from old hens, but we have not yet found a substitute for hard work."

A very good article on farmyard manure follows. It is written by Mr. A. D. Hall, who has been almost too full of technical terms to be intelligible to the lay mind of the majority of farmers. Several of the points which Mr. Hall makes have already been discussed by us, but there is a great deal of further useful information in connection with actual tests and experiments at Woburn and Cambridge to discover reasons for deterioration of dung through loss of nitrogen.

No one is better qualified than Mr. Walter P. Wright to discourse on the pruning of fruit trees, and he contributes a second chapter on this important subject. The first chapter (in the March number) dealt with the cultivation of young trees and their training so as to avoid the necessity for heavy and costly pruning later on. The present chapter teaches how this latter work should be done when it has become inevitable. We are sure that a careful study of Mr. Wright's articles, and action intelligently carried out on his advice, would be an immense benefit to the country, for apart from the purely

orchard districts, there is a most stupendous ignorance as regards the cultivation of fruit trees, and if it were not too drastic we should like a law to be passed that all orchards wheresoever should be inspected once every five years, that all worthless or badly diseased trees should be condemned and uprooted, and it should be compulsory for the occupier to replace them with young healthy trees, chosen from a Government list of proved varieties suitable for the special soil and situation.

Sir W. Thistleton Dyer provides an article on "Degeneracy of the Potato." He does not add much to previous knowledge, his chief conclusion being that we cannot have quality as well as a robust constitution. Plainly speaking, if the British public will have the best British Queens and Up-to-Dates it must be prepared to pay a high price for them.

The number includes altogether twenty-one chapters, all of interest to farmers, especially one on agricultural labour in England during March. Reports from correspondents in various parts are grouped, and give a very good idea of the state of the labour market. A general conclusion to be drawn from them is that the supply at present is quite sufficient in almost every part.

A chapter on the importation of live stock into Brazil gives us the impression that more enterprise in that direction might create Brazil into a great meat producing country. The climate appears suitable for cattle, although some parts may be too damp for sheep. Brazilian importers now get their stock from the Argentine. What are our breeders doing?

Work on the Home Farm.

Although we still have rather more than enough rain, the weather is so mild that we can almost see the grass grow as we watch it. All corn sown early looks well; even wheat is improving greatly and making up for much lost time. A quantity of barley remains to sow even yet. We heard a farmer recently inquiring for a supply of seed. Some potatoes in the fields are peeping through since the ridge harrows were used. They will be earthed up again at once, and then be harrowed again. Countless weeds are destroyed by this process and much labour saved. We hear of further potato planting, and here, again, the difficulty of obtaining seed has been the cause of delay. Now, however, seed is more plentiful, as there has been a slump in the trade for seconds. One farmer, after refusing 70s. for good seed, sent it away as seconds and received 40s. only for it. So now plenty of good seed can be had reasonably, but it is very late for planting, except on very warm soils.

The favourable weather and big "seed" pastures are making the shepherd's duties heavy. He must be round his sheep both early and late if he is to avoid loss. Ewes will not be safe until they are clipped, and it is very vexatious to find one of your best ewes dead in a furrow. There is also the fly question to face. The moisture and warmth is sure to create mawks, although we have not seen any yet.

We fear that wool will be very difficult to sell, but the clip promises to be a good one, both in weight and quality. Fleeces of 30lb and upwards are not uncommon in Lincolnshire.

We shall soon be drilling swedes if the weather will allow. We have ridged up the land to let it dry, and as the manure and land tillages are put on shall split the ridges and drill. A few Fosterton hybrid turnips will be sown first next to the cabbage. The latter are doing well. A good dressing of soot in February, which had little effect on the cabbages, but perhaps more on the rabbits, seems now to be paying for its cost. May hirings are proceeding, and wages are about the same. Men ask higher rates, but do not obtain them.

Trade and Miscellaneous Notes.

Bath and West and Southern Counties' Show.

The fire protection arrangements for the above show, which opens at Dorchester on the 27th inst., have received most careful attention, and have again been entrusted to the capable hands of Messrs. Merryweather and Sons. A detachment of their private fire brigade will be in attendance, men being on duty day and night. The fire station in the show-yard will be well equipped with motor and horse fire engines, there will be a system of fire mains and hydrants laid down, whilst hand pumps and buckets will be placed at various points about the yard. Efficient means of fire protection at agricultural shows is an absolute necessity, and the precautionary measures taken in this respect cannot be too elaborate.

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* April, No. 1, Vol. XV.

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Journal of Horticulture.

THURSDAY, MAY 28, 1908.

Wild Pinks.

REPRESENTED by an infinite variety, yet with characters clearly evident to a discerning eye, the wild Pinks form an important and numerous array, which, taken in the aggregate, form one of the brightest and richest coloured plant groups that it is possible to employ in the adornment of our gardens.

The central district of Europe is the headquarters of some of the most famous species; Transylvania brings at least one species whose beauty is not eclipsed by any other; Greece contributes a distinguished group; and China has her accredited representative. These Dianthus are literally "Divine flowers" (deus-anthus), as, however humble their origin, they make no pretentious claim to excessive admiration. Beautiful as many of the species unquestionably are, they have in some instances been distinctly outclassed by their famous offspring—Dianthus caryophyllus strikingly exemplifies the history of human effort when applied to the improvement of these lowly plants. Self colours and a delicious fragrance marked the initial stages of the improvement with the Carnation. A further advance was marked by the bewildering colours and markings of these border flowers; but in many cases the vigour of the species was sacrificed for the gain of varied colouring, and the soft fragrance that burdened the air of old-world gardens has been bartered for an extra splash or line of colour upon a neutral ground.

It is true that florists at the present day recognise a good constitution as essential, and while the border flower will always be diligently cared for in the hands of sympathetic hybridisers, the most striking outcome of their efforts can only now be recognised in that section which fills our homes with beauty during the duldest season of the year, giving us in the tree or perpetual Carnation a vigour equal to the wild

READERS are requested to send notices of Gardening Appointments or Notes of Horticultural Interest, Intimations of Meetings, Queries, and all Articles for Publication, officially to "THE EDITOR," at 12, Mitre Court Chambers, Fleet Street, London, E.C., and to no other person and to no other address.

NO. 1457.—VOL. LVI., THIRD SERIES.

Pink, with a richness of colour and beauty of form which gratifies the most exacting critic.

As *Dianthus caryophyllus* has gained its greatest triumphs in the hands of hybridisers, so by the same diligent attention having been directed to the wild forms of *Dianthus barbatus* and *chinensis*, there has resulted a class of plants which is equally useful for the small city garden as the more extensive gardens of the wealthy. The colours of *Dianthus chinensis* are characterised by great richness and variety. In some instances, the colour combinations form flowers of striking contrast, while the self-coloured forms can always be freely employed in complementary planting. These Chinese Pinks are best treated as annuals, and if sown under glass early in the Spring, they come into flower during June, and probably a month later when sown in a frame with only a gentle warmth from a hotbed.

The Sweet William (*D. barbatus*) has smaller flowers than the Chinese Pinks, which are borne in collected heads upon 2ft stems. Although generally regarded as old-fashioned border flowers, their delicious fragrance, charming colours, and vigorous growth proclaim them as subjects for extensive culture, and being easily raised from seed, they at least commend themselves to those with limited appliances for producing plants. Some considerable advance has lately been made in the enlarging of the individual flowers, and a decided gain is marked by a lovely pink Sweet William. Sweet Williams are perennial on well-drained soils, but they are best treated as biennials, and raised from seed sown in the open ground during June of each year.

An interesting and beautiful race of Pinks has originated in gardens, and is known as Hybrid Pinks. The flowers are double, and are perfectly formed after the Carnation model; the growth has a strong resemblance to the Sweet William, to which they trace their parentage, having on the other side Carnation blood. In hybridus floribundus the flowers are rose coloured; Marie Pare produces double white flowers in great freedom; Mrs. Dixon has deep cerise coloured blossoms, and Napoleon III. has vivid scarlet flowers on good stout stems, and is also the finest in this section. So far we have dealt only with wild Pinks, which have been considerably altered, till they have acquired what one readily recognises as a garden appearance. They require rich light soil for their fullest development, and are seen to best advantage in beds, borders, or cultivated in pots.

The great majority of wild Pinks require quite other treatment, for to employ them to the uses above indicated is not only unsound in practice, but we rob them of every charm and grace which unconsciously surrounds a wild flower. Nor is this all, for where instances occur contrary to the general rule, it will be found in practice that some position, such as rockwork, enables these plants to bear with immunity the various changes which our climate brings, while the rock garden always offers some hope of giving that picturesque touch to these wildlings which Nature so charmingly employs in clothing the ruggedness of her serrated surface with life and beauty. While offering many advantages, the elaborate rock garden is not always necessary to secure the effective use of *Dianthus*, as instances can be recalled where some old retaining wall has offered ideal positions for their growth.

The species of *Dianthus* available for such positions are headed by *D. plumarius*, the parent of our garden Pinks. *D. annulatus* is a well known form of this, having white flowers with a dark crimson centre, the tufted growth being vigorous, and the foliage is glaucous grey. *Dianthus plumarius* may be accepted as a type of the wild Pink. In the majority of species the growth is low growing and tufted, often shrubby at the base; the leaves are grass-like, and in many instances coloured glaucous grey. The flowers are usually crimson, rose, or purple, while the instances of natural species having white or yellow flowers are rare. The petals are five in number, and are often deeply cut along the margins, giving to the flowers the appearance of a fringe or beard. Although not always strongly marked, the flowers of many emit a delicious perfume. Dwarfier in growth than *D. plumarius*, but having similar glaucous leaves, is *D. caesus*, a species found naturally upon the Cheddar Cliffs. The flowers are rose coloured, but a variety of shades occur among a batch of seedlings. Several forms of *caesus* have been given distinctive names as "Bickham's variety" and "La Boule," which can be procured through trade growers. The latter has deep rose flowers on 3in stems, not unlike small double Carnations. *D. deltoidea* (the Maiden Pink) is a charming native species. The flowers are bright carmine, borne upon small wiry stems, and there is also a white-flowered form, and a variety with clear scarlet flowers, named *atro-coccineus*. *D. fragrans* is a dainty, sweetly-scented Pink with large, white-flushed flowers on stems only a few inches high. *D. conicus* resembles *plumarius*, but having white flowers; and *D. sylvestris* has rose coloured flowers.

Among the most famous of the European Pinks is *D. alpinus*. It makes a carpet of close-growing herbage, from which spring great quantities of big, rose coloured flowers, freely spotted

with crimson. It enjoys the fullest exposure to sunshine, but must never suffer for lack of water in summer. There is a pretty albino form of this Pink which makes a delightful companion to the type. *D. graniticus* is also a rare rock Pink, sharing with the more famous *glacialis* a strong dislike for limestone soil, so that a special compost is necessary when planting on soils of this formation. *Graniticus* is a fragile species resembling the Maiden Pink, the rosy flowers being freely produced upon wiry stems from the dense tuft of pointed leaves. The flowers of *glacialis* are unfortunately scentless, the petals are serrated and coloured reddish purple, while the habit of growth resembles *alpinus*, being dwarf and close set.

From the Hungarian Alps comes *D. Knappi*, a wild Pink of more than ordinary interest, for it shares with the lovely Grecian pubescens the unique distinction of having yellow flowers. The flowers in *Knappi* are carried in dense close heads upon tall stems. These are small compared with pubescens, which, though low growing, produces flowers of a good size and of a soft yellow colour. *D. cinnabarinus* and *orientalis* are brilliant, tall-growing kinds, both Grecians, and ought to be largely represented in gardens.

D. neglectus is one of the brightest and best of rock plants, and it is also one of the easiest to grow. The flowers are a brilliant shade of carmine pink, borne upon wiry stems which spring in profusion from low mounds of grassy leafage. The flowers are usually solitary, reaching a height of 4in to 6in, and like so many Pinks, the flowering season is May and June. *D. petraeus*, the Rock Pink, has bluish white flowers on 6in stems. *D. subcaulis* is a very low, tufted species from the mountains of Central Europe, bearing big rose flowers upon tiny stems; quite one of the choicest of the genus. *D. zonatus* is a rare and beautiful Grecian that should not be overlooked. *Goldius* occurs in Transylvania, and is considered merely a form of *glacialis*; while *microlepis* is found in the same locality, as is also *callizonus*, whose glaucous leafage forms an effective setting to the rich pink flowers with their deeper tinted zone of white spots, marking the lower part of the petals. It forms a striking group when grown in a good colony, and it is one which always evokes unqualified praise.—L. O. V.

These familiar flowers of the border are not commonly employed as pot plants as a change to the forced greenhouse stock, to which, however, they come as an agreeable change. That they have a natural adaptation to the greenhouse has been proved long since; and now that there are the several selections of dwarf types available they might be oftener utilised. The ordinary types grow too tall to have the fullest decorative effect, and even the dwarf kinds have a tendency to elongate, unless they are specially treated to maintain their natural characteristics. As a cut flower in spring, *Antirrhinums* have much to commend them, and, moreover, they have not the fleeting character of some forced flowers. Like Stocks, which are always more or less popular in spring, they need a long season of growth, or quite six months in which to develop vigorous spikes. A good service of these simple flowers following *Primulas*, *Cinerarias*, *Cyclamens*, and kindred greenhouse subjects, is sure to find a welcome, especially where the conservatory demands a constant succession of flowers.

Last autumn we transferred a number from small pots into large-sized boxes to provide material for cutting purposes alone, but the venture has not been successful. One reason for this is probably the lack of air circulating freely among them, and there is a tendency towards undue leaf development. The experiment, therefore, will not be repeated. The shelves of a cool greenhouse, or an open-air pit, from which frost can be excluded, may be made to serve for the winter. They would seem to resent any attempt to force them unduly out of their normal pace, and when it is remembered that other seasonable flowers demand all available stage space, there is admittedly no gain or purpose in hurrying them. Of course, the flowering season can to some degree be governed by the time of sowing the seeds. Florists, who have specialised in Snapdragons, have given thought to the production of large individual blooms, combined with a dwarf sturdy habit, and for pot culture this is highly desirable. The familiar Tom Thumb varieties, which grow only to a height of 6in, or even less outdoors, may easily exceed 12in when grown under glass, and are thereby so much improved in a decorative sense. There is no loss in the size of bloom; rather there is a gain. Had they the fragrance of the Stock, *Cyclamen*, *Freesia*, or *Wallflower*, then, indeed, the *Antirrhinum* would be king of all the conservatory. In this, however, the *Antirrhinum* fails, and there does not seem much hope of this attribute being added. Pots ranging in size from 4in to 6in are those commonly employed. The first restricts the size of plant, the other adds material bulk, but in any of these pots good effects can be provided, and the larger ones would accommodate the intermediate and taller growing varieties conveniently. Their culture cannot be said to be costly or difficult.—S.



Oncidium Gardneri.

We quote the description and remarks made with reference to this orchid in Watson's "Orchids and Their Management":—"A handsome species, with moderately large flowers, very near *O. Forbesi* and *O. curtum*, from which it differs in the form and crest of the lip, and in having very small column-wings. It has oblong-ovate, furrowed pseudo-bulbs 2in to 3in long, and dark green, rather broad leaves, which are purplish on the underside. Flower-spike long, branching, many-flowered; sepals and petals lin long, broadly ovate, with short, stalk-like bases, the margins wavy, shining brown, with yellow edges; lip kidney-shaped, 1½in across, very wavy, with two small basal lobes; colour bright yellow, with broad blotches of brown in a ring round the margin. The flowers, which last several weeks, are produced in summer, about July, and are fragrant. Placed on a teak raft or in a basket, in the cool house, this species grows well and flowers annually. It is found wild on forest trees on the Organ Mountains, in Brazil, whence it was introduced in 1843."

The Bellatulum Group of Cypripediums.

This pretty section of the Cypripediæ has been much in evidence of late, especially the choice albino forms in their relationship to Mendelianism when crossed with other albino Cypripediums. Then we have the fine spotted varieties of bellatulum, particularly that known as Exhlm's variety, which was figured and described in the *Journal* of May 7. Of late they have been making a nice display, and among them we find bellatulum, concolor (with its variety *Sanderæ*), niveum, Godefroyæ, and leucocilium. All are dwarf-growing subjects, and often they produce twin-flowered inflorescences when in good health; but, unfortunately, this is not always the case. They appear to be one of those orchids that need replenishing every five or six years to maintain anything like a fair supply of flowers. These Cypripediums possess beautifully marked foliage, but they are so well known that further description is unnecessary perhaps, excepting Godefroyæ, whose history is somewhat obscure. This plant is probably a natural hybrid, with bellatulum as one parent; and both concolor and niveum have been suggested as the other. The flowers are whitish-yellow, with purple spots; the variety leucocilium differs in having a pure white pouch.

The warm house is the best for this section of Cypripediums, where they may be suspended or grown on the staging among other plants. A few weeks after the flowering period any necessary repotting can be taken in hand; but this must not be overdone with pot room, neither ought the roots to be disturbed more than necessary when moving them into a larger receptacle. The soil consists of fibrous loam, one-half; peat, one-fourth; and sphagnum moss, one-fourth; to which must be added a fair sprinkling of broken brick rubble, or to be more precise, a 6in potful to every peck of the mixture. Fairly deep pans without side holes, or flower pots, are then chosen, and are drained one-third of their depth. Over the drainage is placed a thin layer of loam fibre, then they are ready to receive the plant. After carefully taking the plant out of its pot, remove all the old soil and the decayed roots, when it may be arranged in the new receptacle, so that the compost will be just below the rim. Press the soil moderately firm between the roots, but the potting material must be kept well below the crown to prevent any possibility of damping off. Give a good watering, and for a few days provide a little extra shade until they are re-established. Newly-potted plants must be watered with discretion, and a light spray occasionally will be more beneficial than so much direct watering. Through the winter months it can be withheld for a considerable time; but not to such an extent as to cause any shrivelling of the foliage.—T. ANSTISS.

Odontoglossums.

Odontoglossums that have passed out of flower should be examined, and any that require potting or top-dressing should be attended to. When the growths are about half developed is the best time to pot, as then the young roots soon get hold of the new material, and the whole bulb will not be so likely to shrivel. So long as the plants are in the right condition for potting they can be done at any time. Autumn is the generally recognised time for potting, but I find that by watching the plants, and doing those at once that have the growths half made, instead of leaving them all till autumn, that you keep the work in hand, and the plants improve with being caught at the right time, whereas if the early growths are left they get too

far advanced, and when potted they do not go away so well as the younger growths. A mixture of peat, leaves, and moss, with plenty of crushed crocks, will suit them well. Extra shade should be given to newly potted plants, and not quite so much air given until they get established again. Frequent spraying overhead will keep the bulbs plump. A sharp look-out must be kept for thrip during the summer months. Often in the summer, when the outside conditions are dry, thrip is very plentiful outside, and with the extra ventilation which has to be used, they soon get plentiful in the Odontoglossum house if not checked. The houses will have to be well shaded during the next few months. Where lath or canvas blinds are used there will be no difficulty in keeping the glass cool, but where the houses run north and south a slight sprinkling of flour and



Oncidium Gardneri.

water will prevent scorching early in the morning, and in the evening after the blinds are rolled up.—("Orchid Review.")

At the Temple.

Two beautiful Odontiodas were shown this week at the Temple Show. The one that caused the greatest comment and gave most satisfaction among the growers and connoisseurs, was Odontioda Charlesworthi. Messrs. Charlesworth have had remarkable success with their Odontioda hybrids. In the present case the flower of the Cochlioda parent may be said to be greatly dominant, the other parent (Odontoglossum Harryanum) only having aided in giving size. The colour is a bright vivid crimson-scarlet, and the flowers are borne in racemes. The Harryanum usually stamps itself upon its progeny, but has been quite overcome in this instance. Messrs. Charlesworth were frequently complimented. The other Odontioda was St. Fuscien from a private orchidist, M. Graire, of Amiens, France. This is coloured bright golden apricot, and edged claret.



Japanese Varieties for Exhibition.

The diseases of the Chrysanthemum are, I think, very few, and if plants are kept in a healthy state no one need fear them. Mildew I consider the worst, but in the open air it is easily destroyed by powdering the affected parts two or three times with sulphur. For housed plants a much better and easier method is to use one of Campbell's sulphurators, which, if used according to the directions supplied with it, will not in any way harm the foliage, while it will entirely destroy the spores and stop the moulding. Rust is certainly unsightly, and if neglected in the early stages it invariably ruins the plants. From the very first I carefully pick off any spots I can find, and afterwards the plants seem to grow completely away from it. It generally appears again in the autumn, before housing, but in no case have I had a plant then injured by it so as to spoil the blooms. I think the use of Campbell's sulphurators after housing has kept it from spreading. I have tried several of the remedies recommended, but they have always done far more damage than the rust itself. I have observed, too, that plants which contract the disease in the early stages—say soon after striking—do not seem to take it on so badly in the autumn.

From between the housing of the plants to the show the time seems very short indeed. Some flowers may seem to be opening too early, so that we are afraid they will droop before the time when they are wanted, while others may seem to lag when we want them to hurry. The laggards may be helped on by putting them into the hottest part of the house, or nearer to the hot water pipes, while those which are too early should be shifted into a dry, dark, airy room.

As to showing on boards or in vases, both methods have their advantages, but strong competition from growers at a distance cannot be expected in large classes in vases, the trouble with large cases and cost of railway transit being more than many will risk. Personally, I think if committees were to provide classes in vases for local competitors, in front of which boards of blooms could be placed, with suitable decorative plants between them, the flowers would look well, and it would suit all parties.

Whether for vases or boards, I find the blooms carry best when they are cut a day or two beforehand. Some 18 in of stem should be left, and after stripping off any leaves they should be inserted in wine bottles full of water, with a little paper pushed in to steady them. I have also found a water tube with rubber top, sold by Messrs. W. Wells and Co., of Merstham, very good for those with long stems. On no account, however, should their own foliage be left on, or in an hour or two the flowers will droop and fade. I cannot close this paper without complimenting the Scottish Horticultural Association on the adoption of "pointing" cards for the big vase classes. It is, I think, a good and a right method, and it is both interesting to the public, and gives instruction and confidence to the exhibitors, who can thereby see plainly where their weak points lie, and know what to remedy. It must be gratifying, too, to find other societies following their lead in this matter.—F. S. VALLIS (in the Transactions of the Scottish Horticultural Association).

A Holiday Tour.

(Concluded from page 476.)

WOKEFIELD PARK, MORTIMER, BERKS.

Here I found, since my last visit in 1903, the extensive improvement then in operation all completed, and the dignity of the kitchen garden is much enhanced. The centre walk is some 250 yards long, and is approached by arched iron ornamental gateways. Wide herbaceous borders extend the whole length, affording sufficient scope for the largest subjects. Standard Roses are planted at intervals, and in addition to the permanent occupants, spaces are reserved for Dahlias, clumps of Sweet Peas, &c. Thus we have over a quarter of a mile of wide borders planted with successional flowering hardy plants, and in which all the leading genera are represented. The effect in summer must be magnificent indeed. The newly-planted hardy fruit trees, both of Apples and Pears, have made short, sturdy growths, and many have already borne good crops. There are twenty trees of Cox's Orange Pippin alone, also Charles Ross, Rival, and Paroquet, which, among newer kinds, have produced handsome fruit. On walls, single, double, and triple cordon Pears succeed admirably. Charles Ernest is a favourite; while Josephine de Malines, Glou Morceau, and Doyenné du Comice

figured well, and dishes of several of these won prizes last season at Reading Show. An extensive collection of choice Roses has also been planted in beds and borders. In the fruit houses a few bunches of Muscats of splendid amber tint alone remained, but the numerous plant houses presented, it seemed to me, a brighter appearance even than on a former visit. There are three or four which might well be designated show houses, for the plants are models of good cultivation. Huge Poinsettias predominated in one; Cyclamens and Primulas in another; Begonia Gloire de Lorraine another; and veritable marvels in culture were these plants, in thumb pots, 1 ft 9 in in diameter—a mass of bloom. Orchids were represented by the lovely Vanda cœrulea, Dendrobium formosum, and Lycastes in bloom. Begonias socotrana and Gloire de Sceaux were grandly grown. The corridor was bright with Chrysanthemums and other subjects. The whole place reflects infinite credit on the owner, Alfred Palmer, Esq., on Mr. Woolford, the capable gardener, and on Mr. W. Blake, foreman. It may be added that the whole of the plant houses, nearly a score, are in one compact block, accessible by a connecting corridor, thus reducing to a minimum the work of cultural operations.

SHERFIELD MANOR.

I was also privileged to visit Sherfield Manor, another splendid establishment, situated two and a half miles from Bramley. Gardening here has been carried out with spirit and great success. Recently this seat has passed from the ownership of J. B. Taylor, Esq., to that of J. Liddall, Esq. Mr. James Wasley, the gardener, is not unknown to fame as a successful exhibitor of 'Mums and specimen stove and greenhouse plants, also hardy fruit and Grapes. The large area of pleasure grounds contains a select collection of beautiful trees and shrubs. One bed of Rhododendron is planted entirely with 100 plants of Pink Pearl, and said to have cost as many guineas. There are also large Rose gardens with thousands of trees, which thrive well; also two long pergolas covered with the best climbing Roses. Fruit houses are numerous, and Peach trees are full of young growth and well set with buds. Grapes are well grown, especially Muscats, which I have been informed are perfect in size of bunch and finish. The plant houses contain fine batches of Carnations, superb Cyclamens—flower on stiff erect stems.

HACKWOOD PARK.

The far-famed Hackwood Park was our next venture. This charming and stately demesne is at present the home of the late popular Viceroy of India, Lord Curzon, but has been the property of a long line of Lords Bolton. Here also reigns as gardener one whose name is a household word wherever good vegetables are cultivated. Who has not heard of the renowned Bowerman, raiser of many good things, inclusive of Tomatoes, Runner Beans, and such like. Mr. Bowerman, we are informed, has served under many masters, and indeed seems to be as much one of the leading features as the giant Beeches and Oaks which abound. He resembles them also in physical robustness and strength! The fine kitchen gardens (soil a rich loam) contained a bed of several thousand Cabbages for early spring cutting; splendid Celery; and is also well stocked with hardy fruits. Under glass there were good crops of Tomatoes, Cucumbers, and Beans. Calanthe Veitchii and Poinsettias were each excellent. There are extensive ranges of Peach houses and vineries for early and late supplies. A new light structure for palms has recently been erected. In front of the imposing mansion stands a pretty rosary with bush and climbing forms over arches. Bedding for summer display is extensive, and is surrounded by long stretches of green sward. The ornamental woods are rich in magnificent conifers.

HECKFIELD PLACE.

This noted establishment I had long desired to visit, associated as its owner is, or rather was, with the Isle of Wight. The late owner, Lord Eversley, was a Governor for many years. When these gardens were under the late Mr. W. Wildsmith they had a reputation for good Peach culture second to none in the kingdom. I was delighted to find all the old traditions fully maintained under the skilful management of Mr. G. Gardner, who seemed a most alert man, of buoyant personality. Trees on open walls were full of young fruit-bearing wood, and were most splendidly trained, each one covering a great space; but as regards longevity, one looks in vain for trees existent in Wildsmith's time, all of them here being comparatively young. The cultivation of those trees entail a great amount of labour, the pruning, laying-in, and nailing extending from November to March inclusive. The natural grounds and informal terraces, on which are large stone baskets for trailing plants, are most beautiful and well kept. In one of the houses we noted large plants of Begonia corallina, and a splendid strain of Primula obconica. In a span-roof vinery, originally a lean-to, a novel experiment was adopted by Mr. Wildsmith, the heads of the Vines being brought down to the border on opposite sides, and there taking root, were severed near the ridge of the house, thus covering the other newly added side of the house, and achieving complete success. Large quantities of hardy fruits are grown. We were shown enormous Glou Morceau Pears. A late house of 'Mums promised well.

NOTES & NOTICES

Apple Prospects in Lincolnshire.

Many years have elapsed since there was such a remarkably fine show of Apple blossom in the southern part of Lincolnshire as is the case this year, writes a correspondent of "The Standard" on May 22. The trees just now are thickly covered with bloom, and the prospect of a heavy crop of fruit is not merely confined to one variety, but is general. Market gardeners cannot remember such a promising time for twenty years.

The American Gooseberry Mildew.

The Board of Agriculture and Fisheries has received information that the American Gooseberry mildew (*Sphaerotheca mors uvæ*) has appeared in England in its summer stage, in which condition it is highly infectious. All Gooseberry growers in the infected areas are advised to spray their bushes with a solution of liver of sulphur in the proportion of 1lb. of liver of sulphur to 32 gallons of water. A leaflet describing the disease and a memorandum giving directions how to proceed can be obtained from the secretary, Board of Agriculture and Fisheries, 4, Whitehall Place, London, S.W., gratis and post free, on application. Letters so addressed need not be stamped.

The Western New York Horticultural Society.

The proceedings of the fifty-third annual meeting of the above important American society, held at Rochester, New York, on January 22 and 23 last, are now published in book form, and include some interesting papers and discussions. An experiment, mentioned by F. C. Stewart, botanist at the New York Agricultural Experimental Station, respecting the gumming or gummosis of stone fruit trees is worth a trial. He stated that Van Mecke, a European investigator, had found that trees that received 3lb of common salt about the roots were free from the disease, while untreated trees were nearly ruined. This experiment, of course, needs confirming before the treatment can be regarded as an absolute cure, but it is so simple that all who have trees affected should give it a trial. A unique feature of this society are those prizes known as the Ellwanger prizes. They are offered yearly to members of the society for the best maintained private place with regard to ornamental and fruit trees, and for the best private collection of large and small fruits. The whole of the essays are of a practical nature, and cannot fail to be of great value to the numerous members of the society. The secretary is Mr. John Hall, Granite Buildings, Rochester, New York.

Dutch Bulb Growers' Society.

At the meetings of May 4 and 11, the following awards were made by the Narcissus Committee:—First class certificates to Narcissus Alaska, broadly opened trumpet, deep yellow, and also yellow perianth. Narcissus Van Waveren's Giant, an enormous flower, with deep yellow trumpet and pale sulphur perianth. Narcissus John Pope, with deep yellow trumpet and clear yellow perianth. Narcissus President Wentholt, broadly opened trumpet, deep yellow, and yellow perianth. Narcissus Robert Sydenham, a strong grower, with deep yellow trumpet and pale yellow perianth. Narcissus incomparabilis Winifred, with broad elegant cup and white perianth. Awards of merit were given to Narcissus Harry Veitch, a clear yellow trumpet Daffodil in the way of Emperor, but larger. Narcissus Cornelia, a self-coloured yellow trumpet Daffodil. Narcissus Theba, a deep yellow trumpet Daffodil of fine form and great substance. Narcissus White Pioneer, pure white trumpet, narrow, tube-shaped, and starry perianth. Narcissus incomparabilis Louise, pure white perianth and lemon yellow cup, a drooping flower of medium size. Narcissus incomparabilis Cristata, with peculiar crested crown of yellow colour, perianth cream white. Narcissus poeticus Blanca, pure white, very fine round flower. Narcissus poeticus Glory of Lisse, a fine round flower, with rather large cup. Narcissus poeticus Verdi, with large crown, broadly bordered deep orange. In addition to the awards mentioned above, a gold medal and a silver-gilt medal were given to collections of new Narcissi.

Meteorological Forecasts.

The Meteorological Office, 63, Victoria Street, S.W., has again issued a circular, in which it offers to supply weather forecasts for agricultural purposes during June to September. Particulars may be had upon application to the above address.

French Strawberries and Cherries.

A busy fruit season is anticipated by the importers and dealers at Hull, as the reports as to the prospects at the near Continental ports are encouraging. The steamer Mospa of Goole, from Boulogne, on the 20th, landed at Hull 1,500 packages of fruit, the bulk of which were Strawberries and Cherries. She had also many packages of well-grown early vegetables, amongst them being many fine grown Cucumbers. The condition of the fruit was most excellent, and fair prices were obtained, and further steamers will arrive almost daily. The Gooseberries on the market were exceptionally fine for the season, and large consignments of this fruit are said to be expected from the South of England.

Wallflowers and Snapdragons.

We have received, in company with his notes which appear in this issue, selections of Wallflowers and Snapdragons from Mr. W. Strugnell, The Gardens, Rood Ashton, Trowbridge. The Snapdragons (*Antirrhinum*) are of various soft shades, some of them striped, some selfs (which we prefer), and a few bicolors. Of the Wallflowers, the following were handsome: Lemon Queen, a pale primrose yellow; Carter's Crimson, deep, dark crimson; Carter's Scarlet, a rich, vivid "Wallflower red"; Veitch's Selected Yellow, with magnificent large flowers, having thick large petals and a colour equal to the Royal Sovereign Viola; and Tom Thumb, which is also rich yellow. Some of the mixed colours were poor, being of tawny and magenta shades, dull, drab and uninspiring.

Gardeners at Gatton.

The Reigate, Redhill and District Gardeners' Mutual Improvement Association is happy alike in its choice of president, and in the charming venue selected for the opening meeting of its summer session year by year. In Sir Jeremiah Colman, Bart., the association has a president who takes a deep practical interest in its welfare, and this was again demonstrated when upwards of 200 members and friends responded to his kind invitation to spend a pleasant evening in the picturesque grounds of Gatton Park, Surrey. The natural beauties of Gatton are always sufficient in themselves to attract a big company, but the members of the association are invariably given an added pleasure by the facilities afforded them of visiting the splendidly laid out gardens and conservatories, laden with a wealth of specimens of the gardeners' art, brought to a high pitch of perfection under the able supervision of Mr. W. P. Bound, the popular chairman of the association. The company were regaled by a substantial tea, and then repaired to the lawns in front of the house, where they were cordially welcomed by Sir Jeremiah and Lady Colman.

The Guild of Gardeners.

Twenty years ago the Gardeners' Company was non-existent. Technically, it was still amongst the Livery Guilds of the City; but as a matter of actual fact the company had become so far moribund as to consist of the clerk only. At that time, reports "The City Press," Colonel Davies Sewell and Mr. James Curtis, F.S.A., took steps towards reorganisation, and gathered around them a number of leading citizens. The result of their efforts is seen in the re-establishment of the company on a basis that ensures continuous prosperity in the future. Before us now is an artistic brochure from the pen of Mr. W. T. Crossweller descriptive of the history of the guild from its institution in the Stuart period. The author has dived into the ancient records of the company, and, with the aid of the clerk, Mr. E. A. Ebbelwhite, extracted much material that will interest, not only the members themselves, but all who study the municipal and Guild life of London. Mr. Crossweller sketches year by year the history of the company, indicating the events of more especial interest. His record is brought down to the recent meeting at which it decided to confer the Honorary Freedom on the Duke of Teck, the Earl of Meath, Lord Monkswell, and others prominent in the world of horticulture.

The Temple Show.

Nearly everyone came in a spirit of expectancy. There had been no surprisingly meritorious novelty recently at any of the shows, and folks thought there might just possibly be something saved back for the Temple. But it was not so. The Temple was much the same as in former years, only better. Of that there can be no doubt at all. We who chronicle the passing of these shows are judges! The Council of the Royal Horticultural Society spare no pains to add yearly to the effectiveness of this truly great show. There can now be no other addition to the canvas: the limit was reached last year; but Mr. S. T. Wright, the society's ever courteous garden superintendent, contrives to use the space to the greatest advantage. This year a new opening was introduced into the middle of the long top tent, so that the visitors had not necessarily to make the tour from end to end. It also effected the purpose of better ventilation. A wooden pathway over the terrace to the level of the bandstand was also a welcome addition.

The exhibition yearly improves. There is greater quality, and exhibitors vie with each other to improve upon their arrangements. The Council has the greatest difficulty in awarding the available space so as to be just, yet generous. We believe they had applications for 3,000 square feet more than could be given. This meant curtailing here and there, so that all might have a portion. They also issued a suggestion that groups be not crowded, and that only the best subjects be shown, and all properly named.

The weather proved to be ideal, being cool, yet not oppressively dull. The exhibition was again honoured by a visit from Queen Alexandra, who was met by Sir Trevor Lawrence, Bart., the president, Major Holford, J. Gurney Fowler, Esq., and other members of the Council. The attendance during the day showed no falling off, despite the State visit of the King and the French President to the Franco-British Exhibition. The price of admission to the Temple Show had also been raised to 10s. There appeared to be a paucity of the highest of rank and fashion on the first day, however, who doubtless hoped to avail themselves of the new privilege of the private forenoon view on the second day. [Yes; on Wednesday morning, as we go to press, the tents are crowded and almost unbearably hot.]

In the tents the exhibits that specially call for mention were those of Mr. F. Mentieth Ogilvie, The Shrubbery, Oxford, who won the Veitchian Cup, offered this year for orchids. His gardener, Mr. Balmforth, was accorded a gold Lindley medal for high cultivation. Major Holford's group of orchids was not eligible, as he won the cup last year. Needless to say, it was of the highest excellence.

The second exhibit that claimed our special attention was that of the Hon. Vicary Gibbs (gardener, Mr. Edwin Beckett), who sent sixteen standard *Pelargoniums* *Clorinda*, the new scented-leaved variety. These were magnificent. Thirdly, Messrs. Cuthbert's *Azaleas* were again resplendent, and Messrs. Hugh Low's *Carnations* were beautifully displayed. Messrs. Veitch's foliage and flowering groups also were of the highest excellence; while George Mount's cut *Roses*, and Messrs. Ware's *Begonias* could certainly not have been improved upon. Nor can Messrs. Rivers' fruit trees be overlooked.

The best novelty, to our mind, was *Dracaena Doucetti de Grootel*, which was accorded a first-class certificate. The new *Odontioda Charlesworthiana* was an excellent second. The other novelties that received awards are described at the end of our report.

In the absence of the Rev. W. Wilks, M.A., the secretary, who unfortunately is suffering from a severe cold, the chief clerical duties were under the able direction of Mr. Frank Reader, assisted by an excellent and obliging staff.

Orchids.

F. Mentieth Ogilvie, Esq. (gardener, Mr. W. Balmforth), The Shrubbery, Oxford, was splendidly represented with choice and healthy stuff. He had an immense *Cattleya Skinneri*, measuring 3ft in diameter, and full of flower. Then there were individual grouplets of the following:—*Cypripedium niveum*, *C. Lawrenceanum*, *C. callosum* *Sanderæ*, *Miltonia vexillaria gigantea*, all backed with huge *Cymbidiums* and *Odontoglossums*. There were also noble specimens of *O. crispum* *xanthotes* *Hololucum*, *O. c. Mentieth*, reddish-brown; *O. formosum*, and *O. Andersonianum*, each highly cultivated. No other exhibit in the show displayed a higher standard of cultivation, and the very highest praise was deservedly accorded to Mr. Ogilvie and his gardener.

Major Holford, C.I.E., C.V.O. (grower, Mr. H. G. Alexander), Westonbirt, Tetbury, Gloucestershire, had an extensive group of highly well-cultivated plants. He may have had a larger number of choice subjects at one of the former shows, but this was quite a masterpiece in its way. The *Miltonias*

were very fine, one plant bearing no fewer than 137 grand flowers. Among the varieties of the latter there were *M. vexillaria* *Empress Augusta Victoriae*, of good colour, and *v. virginale*, with white lip, and *v. Memoria G. D. Owen*. Two huge masses of *Odontoglossums*, with long arching sprays, were very imposing. There were also well flowered plants of *O. crispum* *Zoe*, with a few large red spots on white ground; *Cattleya Mossiae* *Baroness*, pale rosy-blush, with rich yellow lip; *C. M. Ami Alexis*, soft pink, with primrose lip and purple centre; *C. M. Wagneri*, L.-c. *Fascinator nobilior*, *C. M. Prospero*, large, deep mauve-pink, with grand lip, golden inside. *C. Dusseldorfei* *Undine* was superbly cultivated; and there was also a fine plant of L.-c. *Canhamiana* *Rex*, *C. Acklandiae*, and some *Digbyana* hybrids. L.-c. *G. S. Ball* and L.-c. *Golden Glory* were each such as could not be omitted from these notes; but, indeed, every plant was remarkable. The group was as usual finely arranged.

Sir Jeremiah Colman, Bart. (gardener, Mr. W. P. Bound), Gatton Park, Reigate, furnished a splendidly imposing bank of thoroughly fresh, clean, and well-grown orchids. The main features were picked out prominently in *Miltonias*, *Cymbidiums*, and *Cattleyas*, which formed three several mounded masses. There was both depth, variety, richness, and high quality here. We would note among other things, *Odontoglossum crispum* *Margery Tyrrell Giles*, lightly spotted and very pleasing; *O. excellens*; several well bloomed *Cologynes* *pandurata*; *Cymbidium eburneum* *Lowianum* *The Queen*, *Renanthera* *Imeschootiana*, *Masdevallia* *Harryana* *Bull's-blood*, *M. H. Gatton Park* var., very bright; *Laelio-cattleya* *Zephyr*, L.-c. *Canhamiana* *alba* *Lady Edridge*, *Laelia Latona*, *Odontoglossum Lindeni*, *Cymbidium Colmanæ* (waxy white), *Phaius Norman*, and *Masdevallia Pourbaixi*. This was a highly creditable display. One ought also to mention the pretty *Spathoglottis Colmanæ*.

Messrs. Cypher, of Cheltenham, were strong in *Miltonias*, for which they are winning special distinction; also *Cattleya Dusseldorfei*, with pale primrose lip; *Cypripedium Rothschildianum*, *Cattleya Skinneri*, *Laelio-cattleya* *Highburyensis*, L.-c. *cinnabarina*, *Odontoglossum excellens* *aureum*, *Oncoidium Krameri*, L.-c. *Ganymede*, very rich buff-pink, together with *Cypripedium bellatulum*, *Zygopetalum crinitum*, *Lycaste Skinneri*, *Epidendrum Boundi*, and other meritorious things.

Messrs. Charlesworth and Co., Heaton, Bradford, as was expected, had a choice group; the arrangement left nothing to be desired. A few of the gems included *Odontoglossum crispum* *xanthotes*, *O. Rolfeæ*, very strong; *O. amabile* *delicata*, *O. Othello* *Golden Gem*, a startling thing, of a golden chestnut, and *O. Othello*, equally good. Their new *Odontioda Charlesworthiana* (*Cochlioda* and *O. Harryanum*) has rich crimson flowers. One must also passingly allude to fine specimen plants of *Cattleya Skinneri*, *Phalaenopsis Rimestadtiana*, *Vanda tricolor*, *Laelio-cattleya* *Henry Greenwood*, *Cattleya Mendeli* *Prince Fushimi*, large and handsome, *C. Empress Frederick*, *Cattleya citrina*, and *Laelia harpophylla*. Not only was there wide diversity of genera, but the varieties and hybrids were of the best.

Messrs. McBean, of Cooksbridge, Sussex, brought *Odontoglossums*, which are their specialty. These were mainly good varieties of *crispum*. They also staged healthy and well-flowered *Cypripediums* *bellatulum*, and a very brilliant variety of *Cochlioda* *Noetzliana*, quite scarlet. *Anguloa Clowesi* and *Cologyne pandurata* were included.

Messrs. Moore, Ltd., of Rawdon, Leeds, also filled a large space most effectively. Along with such seasonable things as the green *Cologyne*, *Miltonias*, and *Masdevallias* in good sorts, they had *Dendrobium* *Victoria Regina*, *Saccolabium ampulaceum*, *Vanda cærulescens*, *Cypripedium bellatulum*, *Angraecum Sanderianum*, *Dendrobium thyrsiflorum*, *Bulbophyllum Godseffianum*, *Miltonia vexillaria rosea*, and *Zygopetalum crinitum*. Of course, they had many large flowered things, as *Cattleyas*, *Cymbidiums*, &c.

Messrs. Armstrong and Brown, Tunbridge Wells, courageously struck out in a new style of arrangement, which was in the nature of a relief to the onlooker. They adopted the form of two low bays, and one prominent forward mound. This brought the plants well below the eye. These, too, were exceedingly healthy and fresh. *Cypripediums* were plentiful, comprising one specially large pan of *C. bellatulum* with twenty flowers; also *C. callosum* *Sanderæ*, *C. selligerum* *majus*, *C. Rothschildianum*, with three large and noble blooms; and *C. niveum*. They also had a well-flowered specimen of *Cologyne* *Dayana*, with eight long racemes; *Odontoglossum perculum*, strong; *O. Wilckeanum* *urana*, *Brassia-cattleya* *Mossiae-Digbyana*, of excellent colour, and *Cattleya citrina*.

An extensive display came from Messrs. Hugh Low and Co., Bush Hill Park, Enfield, who had several choice things. *Cattleyas* and *Odontoglossums* were the best features, the latter comprising many unnamed superior hybrids. *Dendrobiums* were also a feature, particularly *Wiganæ*. Other things were *Cypripedium niveum*, *Cattleya Skinneri*, *C. intermedia* *alba*, *Cymbidium eburneum*, and *Dendrobium thyrsiflorum*.

Messrs. Bull and Sons, King's Road, Chelsea, S. W., brought *Laelia purpurata illustris*, *Dendrobium thyrsiflorum*, *Odontoglossum crispum*, and several varieties of *Cattleya Mossiae*. C. Mendel Empress is a good white form.

Mrs. Collingwood (gardener, Mr. W. Lovett), Silburn Tower, Alnwick, contributed an exceedingly pretty group of *Vanda* teres, as healthy and fine as ever we have seen any.

R. Ashworth, Esq., Manchester, had some very fine spotted *Odontoglossums*, but not named.

Mr. John Robson, Bowden Nurseries, Altrincham, sent fine samples of *Masdevallia ignea*, *Odontoglossum crispum* Starlight, O. c. Princess, both good, with a back setting of *Phalaenopsis Rimestadtiana Perfecta* (grand), and other things.

A few odd plants came from various other exhibitors, as Baron Schröder, Norman C. Cookson, and H. S. Goodson.

Ferns.

Messrs. J. Hill and Son, Barrowfield Nurseries, Lower Edmonton, had a choice assortment, each plant a specimen. *Nephrolepis amabilis* is a new and distinct form, of a bushy character with arching fronds, which are not broad, but are densely tasselled. It is very fine. *Asplenium multilobum* is also new, but is too lax to be pretty. A very fine piece of *Adiantum Veitchianum* was here, with ruddy fronds. *Erostichum stenopteris* is a third scarce fern, somewhat like the Hart's-tongue. A case of filmy ferns added to the interest. Other fine subjects were *Lygodium scandens microphyllum*, *Nephrolepis todeoides*, *Platycerium Willincki*, *Polypodium lepidopteris sepultum*, *Platycerium grande*, a noble piece; and the new *Nephrolepis Amorpohli*. A very fine and choice assortment.

From Messrs. Eggett and Son, Thames Ditton, came a small rockery filled with ferns, chiefly of the hardy kinds. A most pleasing exhibit, but the display was evidently more to exhibit the rockery than the ferns.

The only other fern group came from Messrs. H. B. May and Sons, The Nurseries, Upper Edmonton. Everything was highly cultivated, and most of them were large specimens. *Nephrolepis Whitmani*, N. exaltata superba, N. Schottii, and N. todeoides, were each observed. There were also nice pieces of *Adiantum Farleyense*, *Veitchi*, *Peruvianum*, and elegantissimum. The Stag's-horn ferns were excellent, also the *Polypodiums*—*glaucum cristatum* and *Mayi*. Another fine plant was *Goniophlebium subauriculatum*, with long streamy fronds. *Pteris Summarsi* makes a brightly decorative subject. A collection of British ferns was grouped by them in the open air.

Roses.

Messrs. Wm. Paul and Son, the Royal Nurseries, Waltham Cross, Herts, again were seen at their best as exhibitors of the Rose. Climbers, standards and bushes in all sizes were here, beautifully grouped, with a wealth of dwarfs in front. The bush plants were well shaped, sturdy, full of good flowers, and all fresh and clean. Among those shown were *Elaine*, the new pale yellow h.t. (which we figure on a back page); also *Aennchen Muller* (dwarf polyantha), rose colour; *Albatross*, h.t., new, extra large ivory white; *David R. Williamson*, h.p., rich carmine rose; *Dr. William Gordon*, h.p., brilliant satin pink; *Frau Karl Druschki*, h.p., white; *Madame Abel Chatenay*, h.t., pink; *Marquise de Sinety*, h.t., ochre-yellow; and *Melanie Soupert*, h.t., salmon yellow, suffused with carmine pink. Among the ramblers lining the back, and throughout the group, there were *Delight*, single carmine red flowers; *Grace Thompson*, new, variegated flowers, habit of *Crimson Rambler*; *Hiawatha*, single crimson; *Kathleen*, single carmine rose; *Lady Gay*, rose-pink, double flowers; *Minnehaha*, satin pink, double; *Paradise*, single, pink and white; *Stella*, carmine single flowers; and *Tausendschön*, silvery rose, large flowers. These bore showers of blossoms, and it is scarcely necessary to say that they were the centre of an admiring host.

Messrs. B. R. Cant and Sons, The Old Rose Gardens, Colchester, had a pretty table display. *Hiawatha* and *Dorothy Perkins* were good, and their new *White Dorothy*, which, however, has a blush centre. The lovely new *Tausendschön*, with huge, double, wavy-petalled, shell-pink flowers, was very fine. They also had the Austrian Copper, *Paradise Rambler*, *Himalayan Briar*, Mrs. F. W. Flight, and the *Garland*, together with three exhibition boxfuls of cut flowers.

Messrs. Paul and Son, Cheshunt, filled the corner angle on the left side of the orchid tent. Their ramblers were ideal specimens, especially those as standards with shower heads. The new pale yellow Goldfinch was excellent; also *Hiawatha* and *Dorothy Perkins*. The standard h.t.'s were equally handsome, among them being *Geo. Laing Paul*, rich red; *Paula*, a new pale yellow tea; *Nellie Johnstone*, another new tea, paler than *Chatenay*, but after that style, with very large flowers; *David Harum*, *Richmond*, *Instituteur Sirdey*, golden; and *Wm. Shean*, cerise, being other fine things.

Rambler Roses as large bush specimens and others trained straight up came from Mr. Charles Turner, of Slough. Among the varieties were *Sweetheart*, W. A. Richardson, *Dorothy*

Perkins, *Turner's Crimson Rambler*; and good bush plants of *Souvenir de Marie Verdier*, *Stella*, *L'Innocence*, and *Sou. de Pierre Notting*. They had also pyramidal *Azaleas indica* in the varieties *Madame Van Houtte*, *Vervæna*, *Roi d'Holland*, and *Madeline*. These plants were 4ft high, and flowered from top to bottom.

Messrs. Cutbush and Son, Highgate, N., again occupied their old position in the upper right hand corner of Tent 5. If possible, they surpassed even the best of past efforts in the grace and splendid richness of the effect. Tall arching plants of *Hiawatha*, the new dark red rambler, stood over the dwarf bushes of *Baby Dorothy* and Mrs. W. H. Cutbush and Mrs. F. W. Flight. *Paradise*, a bright single pink, was also well shown. The latter was in pyramidal mounds. The whole scene was one complete picture in rich pink and crimson. The background was of tall palms, and right in the corner of the angular space a bank of rich yellow *Azaleas* added to the general brightness. It was undoubtedly a great effort, both culturally and from the decorative point of view. Masses of *Malmaison Carnations* were grouped here and there, and one particularly observed *Cecilia*, yellow; *King Arthur*, scarlet; *Princess of Wales*, blush; *The Pasha*, orange; and *Baldwin*, deep cerise.

Mr. George Mount, The Nurseries, Canterbury, had the most resplendent bank of *Roses*, he confining himself mostly to choice cut flowers. These were perfect, and the one that commanded universal admiration was *Joseph Lowe*. *Liberty* and *Richmond* were also on view, with *Frau Karl Druschki*. No one grows such fine forced *Roses* as Mr. Mount.

Messrs. Hobbies, Ltd., Dereham, occupied one end of the long tent with a grand exhibit of decorative *Roses*. The tall standards were splendidly done. The varieties *Hiawatha*, *Minnehaha*, *Tausendschön*, *Delight*, and *Dorothy Perkins* being truly wonderful. The front was made up with miniature standards grown in five-inch pots. Here the miniature *Maman Levassieur* and *Schneewittchen* were noteworthy, while a few exhibition varieties completed the display.

Messrs. A. Dickson and Sons, Ltd., Belfast, staged a few of their new *Roses*, which included *Molly Sharman Crawford*, a pure white tea; *Harry Kirk*, a good yellow tea; *Col. R. S. Williamson*, a flesh pink hybrid tea; *Avoca*, a fine red; and *Dorothy Dennison*, a new climber.

Messrs. F. Cant and Co., Colchester, had a large exhibit of *Roses*, which included many climbing varieties that were trained up the roof of the tent. Needless to say, all were in grand condition. Some of the most attractive of the large flowers were *Countess of Derby*, *Earl of Warwick*, *Queen of Spain*, *J. B. Clark*, and *La France*. The climbers were literally loaded with flowers, and probably formed one of the most extensive displays ever seen at the Temple.

Messrs. Cannell and Sons, Swanley, furnished an exceedingly rich mass, composed of such kinds as *Lady Gay*, *Sweetheart*, *American Pillar*, a crimson single; and *Philadelphia Rambler*. The plants were models of excellence.

Mr. Geo. Prince, of Longworth Nurseries, Oxford, contributed a similar *Rose* display.

Foliage Plants.

Messrs. James Veitch and Sons, Ltd., Chelsea, S.W., always stage the perfection of stove foliage plants. The present was no exception to the rule. What a magnificently grown collection; and what skill in arrangement! Mr. Tivey, the grower, deserves the highest praise. At the forefront, in each corner, poised on stands, were two perfect models of grace and precision in plant form, represented by *Dracena Doucetti de Grootei*. This variety has narrow leaves, purple-carmine coloured at the base, while their edges are bright yellow, and the centres green. Other noble plants were upright cordons of *Croton Prince of Wales*, also *tortuosus*, and *Elvira*. *Nepenthes* were set over and above the other plants. *Alpinia Sanderiana* is a graceful variegated plant which might be oftener seen. *Heliconia illustris rubricaulis* was also good of its kind. Groups of perpetual-flowering *Carnations*, and a central mass of orchids—*Odontoglossums* and *Cattleyas*—were prominent features; while the massive *Caladiums* throughout the display afforded richness of variety. Among the latter were *Madame J. Box*, *Guil Mor*, *Raymond Lemoine*, *The Mikado*, and *Sir Henry Irving*.

Well-grown *Caladiums* also came from Messrs. John Peed and Son, West Norwood, S.E. The colouring was very fine, particularly in *John Peed*, crimson with green edge; *Diamantina*, pale creamy pink, blotched green; *Candidum*, white and green; *Mme. Marie de Flacourt*, a dream in pink and cream; *Racine*, soft pink with crimson veins, and *Marie Mitjana*, crimson-scarlet.

Messrs. Wm. Bull and Sons, King's Road, Chelsea, S.W., had stove foliage plants, but, as usual, they were wretchedly staged. We do not like to have to criticise unfavourably, but very little taste was displayed in grouping. *Dracena Victoria* was good; also *Heliconia illustris rubricaulis*, very large; together with *Asparagus Sprengeri variegata*, *Croton Reidi*, tree ferns, *Caladiums*, *Aralias*, and *Bertalonias*.

Trees and Shrubs.

A mixed group of indoor and outdoor flowering and other-wise ornamental plants was placed together in the large tent by Messrs. James Veitch and Sons, Ltd., of the Royal Exotic Nurseries, Chelsea. This included many other subjects besides Rhododendrons, as Azaleas Anthony Koster, Cytisus Beani (yellow) as standards; tree Pæonia Reine Elizabeth (a grand double cerise), Rheum Alexandræ, a new yellowish leaved Chinese species—leaves more like those of Sorrel; Clematis montana rubens, mauve-pink; Clematis (Atragene) alpina, violet; Libocedrus macrolepis, resembling Thuopsis dolobrata, and some of their new Vitis, as Thomsoni, megalophylla, and armata Veitchi, each quite distinct and graceful. Their new bronzy velvety leaved Actinidia chinensis was another notable plant.

Mr. H. C. Pulham, Elsenham, Essex, contributed an exhibit of flowering shrubs, cut and arranged in vases. Lilacs in variety, Weigelas, Cytisus, and Choisya ternata were to be seen, while the Acer and Beech foliage employed made a capital foil.

Once again Mr. T. Jannock, Dersingham, Norfolk, brought a group of his delightful Lilacs, some as standards, but most as bushes. Marie Legray, white; Belle de Nancy, lilac-pink; and Louis Späth, a good purple.

Messrs. W. Paul and Son, Waltham Cross, made an interesting exhibit of Lilacs in variety, also Rhododendrons and Azaleas. The exhibit was evidently suffering for want of more space.

From Messrs. W. H. Rogers and Son, Ltd., Southampton, came a nice collection of Rhododendrons and Azaleas, arranged with cut Magnolias, Acers, and Spiræa Van Houttei.

A nice exhibit of cut Lilacs and Hydrangeas came from Messrs. Paul and Son, Cheshunt. The Lilacs included all the more modern varieties, while the plants of Catalpa syriacifolia var. pulverulenta were most attractive.

A group of Rhododendrons in a cut state came from Mr. R. Gill, Tremough, Penryn. The magnificent trusses attracted most of the exhibitors. Perhaps the most meritorious were R. Aucklandi, R. Gillei, R. Falconeri, and a number of other forms. A very fine example of Embotrium coccineum was also on view, while Ceanothus puniceus attracted much attention.

Messrs. Cripps, of Tunbridge Wells, again had Acers as fine as ever, and in all the varieties. Messrs. Cutbush had their variegated clipped Yew and Box trees, and pyramidal Bays. Messrs. Carter and Co., also Messrs. Barr and Sons, each displayed Japanese pigmy trees.

Trees and shrubs also came from Messrs. David Russell and Son, Essex Nurseries, Brentwood. They had rambler Roses, and a new large leaved variegated Acer, named Drummondii, together with Aralia Mandschuricus, Azaleas, Kalmias, and Maples.

A group of fresh young Maples was sent by Messrs. W. Fromow and Sons, Chiswick. Messrs. Richard Smith and Co., Worcester, also had shrubs, among them being Sciadopitys verticillata, Azaleas, Clematises, Cytisus præcox, dwarf Yews, and other evergreens.

Messrs. J. Waterer and Sons, Bagshot, presented standard Hollies with round heads; also Portugal Laurels of similar form; golden bushy Yews, and a selection of their best Rhododendrons. Genista hispanica lined the front.

Messrs. J. Backhouse and Son, Ltd., York, had a pretty bank of the hardy Azalea roseiflora. The plants were good and well flowered.

Variegated Ivy from Mr. L. R. Russell, Richmond, was of beautiful colour. The variety was Hedera dentata variegata, a fine sport from the old H. dentata, and which appears to have much of the strength of its progenitor.

Sweet Peas

Mr. Robt. Sydenham, Tenby Street, Birmingham, again came to the front with Sweet Peas. He had a pretty little collection, in which were Gladys Unwin, White Spencer (good), Herbert Smith, and a yellowish-red seedling, like St. George.

Messrs. E. W. King and Co., Coggeshall, staged a nice exhibit of Sweet Peas, the best being Mrs. W. King, a grand variety, really the John Ingman we saw the first season the variety was introduced; Helen Lewis, Mrs. Collier, Gladys Unwin, and King Edward VII.

These beautiful summer flowers came from Messrs. G. Stark and Son, Gt. Ryburgh. The flowers were very fine for the early period, especially so were Nell Gwynne, H. Eckford, Mrs. Collier, and White Spencer, amongst a number of standard sorts and reputed seedlings.

Mr. C. W. Breadmore, Winchester, presented a really fine display of Sweet Peas. The flowers were not only large, but carried on long stems, the best being Helen Lewis, Princess Victoria, Elsie Herbert, Miss Willmott, and Mrs. C. W. Breadmore.

A prominent display of Sweet Peas also came from Messrs. Dobbie and Co., who staged a new variety called The King.

Hardy Herbaceous and Alpine Plants.

Messrs. Wallace, of Colchester, filled a long table with choice seasonable flowers. We observed a fine selection of Gladioli; also hybrid Onocyclus Irises, and a display of Bearded and Spanish Irises. Among other things were Incarvillea Delavayi, the new pink Astilbes, looking very fresh and fine; various Cypripediums, particularly C. calceolus. A grand assortment of Saxifraga pyramidalis was another strong feature, together with Primula Sikkimensis, Azalea roseiflora, Lilium rubellum, which they do very successfully; hybrids and cross-breeds of Primula japonica in a goodly array of colours; also Eremuri, Cytisus Firefly, Lilium testaceum, and others.

Messrs. James Veitch in one of their fine separate groups staged Meconopsis punicea, deep clear claret-red; M. racemosa, blue; and M. integrifolia, yellow; also well-grown plants of their new hardy Primulas, which we have elsewhere alluded to.

The Craven Nursery, Clapham, Yorks, made a pretty little rock garden, which was nicely arranged in the small space allotted. A fine bank of Trillium grandiflorum made a good show, while Edrianthus scrophyllifolius, with its violet flowers, was attractive. Other features were Ramondia Natalis.

Messrs. W. Artindale and Son, Sheffield, had a small bank arranged naturally. The whole presented a fine appearance. The varieties of Primula Sieboldi were conspicuous features, while blocks of Aubrietias in variety were pleasing, as were also Gerberas, Gentiana scutellaria, and some hardy ferns.

The Misses E. and M. Kipping, Hutton, Essex, made an artistic display of alpine plants, in which were noted Geums, Saxifragas, Aubrietias in variety, and Daisy Dresden China, a sweet little pink form. Irises and Solomon's Seal were effectively utilised in the background. A very tasteful exhibit.

From Messrs. J. Cheal and Sons, Crawley, came an exhibit of Lupines in variety. The most striking being Cheal's Pink. A few good flowers of the Tree Pæony, Mme. H. Lowe, were striking, while a collection of Violas made a good front.

Phloxes from Messrs. Gunn and Sons, Olton, Birmingham, were quite a distinct feature, considering the early period the colours were first-rate. Tall bamboos were filled with Miss Robertson, white; Burns, rosy purple; White Swan, and Mrs. Leekie, while a prominent feature was Viola cornuta purpurea, a fine violet colour.

Anemones from Mr. N. Lewis, Seversdown, Bridgewater, were bright and attractive, while Aquilegias of the long-spurred type were also in evidence.

Messrs. B. Ladhams, Ltd., Shirley, Southampton, made a specialty of Aquilegias in their group of hardy flowers. A. Stuarti was in splendid form. Rehmannia angulata was also in good condition, while Incarvillea grandiflora made a fine feature. The whole group being nicely arranged.

From Messrs. G. Bunyard and Co., Ltd., Maidstone, came a large display of hardy flowers, in all about 150ft of tabling. The Lupines were a good feature, L. Morhemii was very distinct, as were also L. Foxi, and the older forms. Papaver Silver Click was very bright, while Calla Rehmanni was much admired. A collection of Tulips was also conspicuous, while the whole collection was arranged with more than ordinary skill and taste.

Pæonies and Pyrethrums came from Messrs. Kelway and Son, Langport, the best of the former being Queen Alexandra, large single white; and Henry Irving, dark crimson; with Beauty, carmine-scarlet; Mrs. Wm. Kelway, large double salmon pink; Lord Selborne, cerise; and Pæonia officinalis rosea plena, crimson. Among the handsome Pyrethrums, which commanded great attention, were Mrs. Wm. Kelway, deep pink; Yvonne Gayeaux, double pale yellow; Dorothy, single pink; and Cassiope, crimson.

Messrs. Thos. S. Ware, Ltd., Feltham, contributed Lupinus arboreus Somerset, a pretty pale yellow; L. polyphyllus hybrida, purplish pink; Saxifraga umbrosa aurea fol. var., a novelty; Orobanchaceae, Viola pedata, Cypripedium macrantha, Pentstemon secundiflorus, lavender; with various Primulas japonica, Iberis gibraltarica, a mauve variety; Welsh double Poppies, Androsace foliosa, and Aquilegia cærulea. They also had Anchusa italica Dropmore variety. There were also good plants of Conandron ramondoides, well flowered.

Mr. Amos Perry, Hardy Plant Farm, Enfield, was another exhibitor of hardy flowers. It was difficult to pick out the best features, for all were good. Some of the best features were Geranium atlanticum, Tulips in variety, Phloxes in variety, some good Pæonies, a collection of Primulas, and quite a striking collection of Liliums. The latter were represented by L. Hansonii, L. speciosum, L. s. album, L. elegans aureum, and L. auratum. Also Nymphaeas and various bog plants. The Irises were also an attractive feature.

The Misses Hopkins, Mere Gardens, Shepperton-on-Thames, arranged an artistic rock garden. The chief features were Daisy Alice, Cypripediums in variety, Aubrietias in quantity, Primula japonica, with Gerberas, Sedums and Aubrietias in great variety.

(Continued on page 499.)



Mr. J. George.

I would like to add a word or two to what you so well say about Mr. George in the last issue of the *Journal of Horticulture*. My first acquaintance with Mr. George was at the Chrysanthemum Show held in 1881 at Kingston-on-Thames, where I won a first prize for incurved blooms under his judging. I was much impressed then, and in after years, with his knowledge of the incurved section, and his method of appraising the individual value of each blossom. He was a thorough exponent of the terms known as "form" and "finish," which in too many of the present-day varieties are missing. A rough or misshapen flower he would not recognise. Such doctrine as he expounded has been valuable to me since.—E. MOLYNEUX.

Habits of the Starling.

By Kent farmers and gardeners this well-known bird is regarded with some degree of suspicion or dislike. For one thing, the species appears to be more abundant than formerly, and whereas at one time it was chiefly observed in the open, it now often visits gardens, and joins company with the sparrows that are on the watch near houses for crumbs or fragments of meat. Its diet is rather mixed, and very likely it may pull up young plants or open buds occasionally, but an examination of the crops of some starlings showed that they are extensive eaters of insects. There were all sorts of insects, winged species, caterpillars and grubs picked off plants or trees, also beetles and other underground insects which the birds must have turned up. This is surely a point in favour of the species. Like sparrows, the starlings sometimes hold a "chapel," usually in a retired wood, to which they come from all quarters by hundreds, or even thousands, and disperse as they came.—C.

Destroying Worms in Lawns.

Lime water is very commonly recommended in gardening articles for destroying worms in lawns. The following recipe is one I have always found effective. Take a lump of fresh lime and place it in a bucket with a little water and then fill up the receptacle; stir vigorously, allow the liquid to settle, and await events. If it is seen that there is a distinct sediment on the bottom of the bucket it may be safely concluded that the water is fully charged with lime; it should be strained off for use. If, however, there is no sediment, more lime should be added, stirring must again be done, and this should be continued until the sediment is seen, as in its absence there



Bed of Tulips, White Swan.



Primula frondosa.

will be a deficiency of lime. Amateurs need not fear that they will make the liquor too strong; this is impossible, as the water will only hold a certain quantity of lime in suspension.—B., Bagshot.

Wallflowers.

There is no community to whom the familiar and homely Wallflower does not appeal at this season of the year; for in the gardens of the cottage, even to the humblest degree, abundance of these fragrant flowers are found. In the flower gardens of the mansion quite elaborate colour schemes may be made up from the distinct varieties available. It is possible to select at least fifty bearing distinct descriptions. The old Blood Red, and selections from it, have been favourites for many years, and the same may be said of Golden Tom Thumb. Speaking for ourselves, we cannot raise affection for the old Wallflowers that are found flourishing in the simple cottage garden. Much care must be taken to ensure purity; yet it only rarely happens that "rogues" are found among the selections. Some of the well-known seedsmen distribute mixtures of the finest varieties, embracing many distinct shades, and for borders and isolated beds these claim a large degree of appreciation. In the formal flower garden something more definite must be chosen for the sake of harmony, and as we have already remarked, there is no shadow of difficulty in producing either diversity or harmony. In Wallflowers there is ample to meet the needs of the most fastidious, and though there may be said to be much less diversity in double than in single forms, yet the diversity is sufficient. The present is a good time both to choose and to sow Wallflower seeds. Trial may be made with new ones, or old ones may be respected. Sometimes one is privileged to inspect some exhaustive collection, when criticism of the kinds can be made.—W. S.

Primula frondosa.

This is a very pretty, small, cluster-flowered species, after the style and habit of *P. farinosa*, the Bird's-eye Primrose, and *P. Forbesi*, the Baby Primrose, but larger than either of these. It was in bloom a fortnight ago, and may be found flowering into June. The flowers are bright mauve-purple, freely borne. It is native of the kingdom of Thrace.

Tulip, White Swan.

This is quite one of the best white Tulips at present upon the market. It is single, with snowy-white, large globular flowers, as may be seen from our photograph of a bed of them. The substance is thick and good. It grows 15in high, bearing up well; and is good either for forcing and cutting or for a display in a bed.

Notices of Books.

MANURES FOR FRUIT AND OTHER TREES, by Dr. A. B. Griffiths. London: Robert Sutton, 43, The Exchange, Southwark Street, S.E.; price 7s. 6d.

This is undoubtedly a useful reference work upon matters concerning the ash constituents of trees; and upon what manures or fertilisers to supply to fruit and other trees. It contains rather a curious mixture of technical and literary matter. The author appears to have allowed himself some liberties in the composition of it. As he proceeds he seems suddenly to remember some line or allusion to his subject by one of the great writers, and thereupon he quotes. Often, it appears to us, that these quotations are quite superfluous, but there they are.

Whether gardeners and foresters will go so far as to apply manures to Poplar and Willow, and all the other trees that are herein named, is not for us to say; but Dr. Griffiths has at

function of assimilation, light is necessary, and also iron; the latter being a fact not sufficiently appreciated.

Chapter III. deals with the varieties and composition of soils, and notes are incorporated as to the soils that certain fruit and forest trees prefer. A quotation from Cheal is also given, to the effect that "The high percentage of iron oxide present in the Californian soil is probably the chief contributing cause of the brightness in colour of the Californian fruits."

Following this chapter comes the lengthy one, with abundance of tabular and numerical data, on the composition of fruit trees; and then another on the special manures for individual genera; and lastly, a brief allusion to how to assort and plant ornamental shrubs, which is more largely horticultural than scientifically chemical.

THE MODERN CARNATION: HOW TO GROW AND SHOW IT, by Hayward Mathias and P. Smith. Burnley: The Horticultural Printing Co.; price 3s. 6d. net.

Some of our readers who may have seen and read this book several months ago, may think this is a second edition we are reviewing. We have not heard of, or seen the second edition, but doubtless the demand will call for a reprint. The book is pleasantly written in a straightforward way, the first section dealing with border varieties, and two others with Malmaisons and "Americans." This is the "new year" in the perpetual-flowering Carnations' cycle, when growers can start afresh with young rooted stock. The Malmaisons, of course, are coming into flower, and the border kinds will also soon be blooming. How to hybridise forms one of the chapters, and another is devoted to exhibiting and to "dressing the blooms"—the latter a custom not yet outgrown. All of these are seasonable; and, indeed, a book like this, at the present day, is never out of season, since there are Carnations for winter, spring, and summer, with quite enough to spare for autumn. "Diseases and Pests" are considered in the final pages, and the book is the product of two experienced cultivators. It is such as one can safely recommend.

GRAPES AND HOW TO GROW THEM, an illustrated guide, by J. Lansdell. London: W. H. and L. Collingridge, 148, Aldersgate Street, E.C.

This is a "handbook dealing with the history, culture, management, propagation, and insect and fungoid enemies of the Grape Vine in vineries, green-

houses, and in the open air." Mr. Lansdell, as we know, has had good experience, and is well qualified to furnish pointed and reliable hints upon this very important part of the gardener's functions. Grapes are one of the great crops of the garden. In the historical part, it is not pointed out that the flue, as a means of heating, was first employed in a vinery at Belvoir Castle. The placing of glass "windows" against open-air Vines first suggested the idea of the greenhouse. As the book costs but a shilling, it will be accessible to a wide circle of purchasers.

Delphiniums in an Orchard.

The stately Delphinium appears to advantage anywhere, be it in borders or in the wooded glade. But it likes its share of the good things of the earthy larder, and enjoys a rich deep loamy soil, not loose or thin, nor very heavy, or close, or cold. Neither are we to expect the best results from freshly planted crowns. The roots are somewhat impatient of disturbance, and only the best yields are accorded in the second, third, and fourth years following their replanting. Under the best conditions of soil and an open position, Delphiniums, according to variety, will attain 6ft or 7ft in height, perhaps even more. The best of Kelway's newer varieties have flowers as large, or bigger, than a crown piece, borne closely on a long spike. We are indebted to Messrs. Kelway for the use of the illustration.



A Bed of Kelway's Delphiniums in a Somerset Apple Orchard.

least supplied the manurial formulæ for them. The chapter on "Manures for Fruit Trees," however, has an especial value.

The book opens with a short historical introduction on plant-chemistry and soil chemistry, in which the makers of the science are mentioned and their work described. Earl Dundonald's book, published in 1795, is the first in the English language on agricultural chemistry. The composition of the atmosphere, we are told, was not discovered until the close of the eighteenth century. Liebig's discoveries receive due recognition. It was he who gave the death blow to the humus theory—the theory that plants lived upon humus. "Liebig fully established the laws which govern a proper system of husbandry; and these laws form the basis of modern scientific agriculture and horticulture." Great progress has been made since 1840.

Dr. Griffiths points out that according to the law of minimum, a soil destitute of any one of the mineral constituents may become more or less barren, "since it is the minimum of any one essential ingredient, and not the maximum of others, which is the measure of fertility." The selective action exercised by roots, we learn, was originally proved by De Saussure. Those who hold to the theory that according to the intensity of the refraction of light from any vegetable surface, so is the colour, will not probably agree with the author's unqualified statement that "the mixing of two pigments (chlorophyll and xanthophyll) in different proportions gives most of the various tints or shades of leaves." If this is true of leaves, why not also of petals, which are metamorphosed leaves? In the

Aphides.

NUT APHIS (*A. coryli*) is not generally very infectious and injurious, though sometimes being so abundant as to coat the husks and Nuts with "honey dew."

THE WOOLLY APHIS OR AMERICAN BLIGHT (*Schizoneura lanigera*) differs from the preceding members of the aphides in having a single furcation or fork of the cubital vein, hence the secretion of "honey dew" is very small. Apple growers notice tufts of woolly or cottony substance on the stems or branches of Apple trees. They find the white substance to consist of little groups of aphides in various stages, and feeding by pushing their suckers into the tender bark. This causes an abnormal growth of the infested part. The infection may arise from viviparous females carried by wind, and by winged viviparous females—dark brown, with large wings, black veined. Towards the end of summer, among the larvæ produced by these winged forms are wingless, egg-bearing females, of a dirty yellow colour, and unable to feed. Each of these wingless females deposits one very small, round, transparent egg in the crevices of the bark, and from this hatches a viviparous larva. Propagation, once established on a tree, is however, principally carried on by hibernating viviparous larvæ, which pass the winter wrapped up in their woolly coats upon the trunks of the trees, on the branches and twigs, as well as upon the roots in some cases. In the spring these wingless females produce viviparous larvæ and increase enormously, so that the infested tree is dotted with cottony tufts and streamers hanging from the branches. Occasionally the woolly aphis is found on the Crab in hedgerows, some examples of which I had under observation for several years, and was particularly interested in noticing the attentions of the Tomtits (*Parus cerulea*) in winter, and the entire clearance of the pests.—T. R.

Irises.

An Oncocyclus Iris.

This is by no means frequently met with in gardens, but flowers are occasionally exhibited at the shows. Messrs. T. S. Ware, Ltd., obtained an award of merit for *Iris Sari Nazarensis* in the year 1893, but there does not appear to be very large stocks about. We quote the following from Mr. J. Weathers' "Practical Guide to Garden Plants" (Longmans), a book that we never can praise too highly:—"Iris Sari, a fine *Oncocyclus* Iris from the banks of the River Sar, in Cilicia. The typical plant, which has bright lilac flowers, does not appear to be in cultivation, but is represented in gardens by the variety *lurida*, which has about six sword-shaped somewhat glaucous leaves, about 6 in long and 1 in broad. The flowers are produced in May and very much resemble those of *Iris Susiana*, but are somewhat smaller, and of soft violet-purple, with deeper spots and veins, the falls being darker in colour than the roundish standards, and having a diffuse brownish-black beard. When the flowers first open they have the general dark silver-grey appearance of *I. Susiana*, but the purple hue becomes more pronounced with age. The variety *Nazarensis*, from Palestine, has the falls heavily veined with rows of brownish-purple spots on a pale or straw-yellow ground, and a large maroon blotch in the centre, while the standards are creamy white, beautifully veined with blue." Our illustration will help to convey a better idea of the flower. The plant is dwarf, not exceeding 1 ft in height. Fine roots are obtainable at the price of sixpence each, or 5s. per dozen.

The Monspur Tribe.

It is difficult to set any limit to the possibilities of variety and improvement which await the Iris in the future, and the hybridiser has spread out before him, when he considers the worlds still left for him to conquer, a vista of the most fascinating prospect. The victories of the past hold out the necessary encouragement for him to go forward, for the many lovely hybrid Irises now in existence will only spur him on to greater achievements. One of the most ardent students and hybridisers of the Iris was the late Sir Michael Foster, and, although that truly great man has passed from among us, the creations of his hybridising work remain with us to give pleasure to generations of admirers of the *Fleurs-de-Lis*.

Among the flowers we owe to Sir Michael Foster are the Monspur Irises, by which we mean the hybrids he raised between two fine species of beardless Irises, *Iris Monnieri* and *I. spuria*. The former is a noble golden yellow Iris, flowering

in June and July, and a bold plant with its handsome leaves and its stems from 3 ft to 4 ft high, according to its position and soil. In water or in moist places it will reach 4 ft high, but in the border it will be dwarfer, although very beautiful in either. The latter is a pretty well-known plant, also from 3 ft to 4 ft high, and giving beautiful lilac-blue flowers in the type, some variation existing, however, and giving rise to some named varieties. The union of these two fine Irises has given us these Monspur varieties, which have taken their size and general form from *I. Monnieri* and their colour from *I. spuria*. The shades of colour vary somewhat, but lilac-blue predominates, and a group of these Irises by the side of a pond



Iris Sari Nazarensis.

or lake or massed in the border is a delightful sight when they are in bloom. Their general height is about 4 ft.

There are in commerce, apart from mixed seedlings, several named varieties, such as *Dorothy Foster*, which has blue falls and violet-blue standards; *A. J. Balfour*, which is violet-blue with a yellow blotch; *Premier*, violet; and the charming *Juno*, with lilac-blue standards and pretty falls of white, but veined and shaded with blue and decorated with a golden spot. A few other named varieties exist, but I do not think they are in commerce. The Monspur Irises will thrive in the places already indicated, either by the water or in the border, but in the former, at least, they must be in sun, or they will run more to foliage than to flower. They like sun when in the border, also if plenty of flower is required; but in such a place occasional watering will be helpful, especially if in a naturally dry soil. These beautiful varieties are worthy of the attention of those who take an interest in the glorious *Fleurs-de-Lis*.—R. N.



The Rock Garden in May.

Notes from Kew.

The Daffodils and earlier flowering bulbs are mainly past. A few of the poet's Narcissi still linger in the grass, particularly where they are screened from the sun behind the tall Beech trees. Bluebells and "Whitebells" and "Pinkbells" are to be seen in the grass, along with May-flowering Tulips and patches of *Saxifraga rotundifolia*, which holds its own very well. Of course, the vast sheets of deep blue furnished by the Bluebells in the woods and in the Queen's Cottage grounds attract crowds of visitors. Sunday might have been called Bluebell Sunday. We do not think there can a finer sight than this in any other garden anywhere.

Then the gorgeous Azalea garden is nearing perfection, than which nothing is more beautiful at the height of its display. The circular masses of the most brilliant reds, yellows, and orange colours upon a deep green setting, and spread as they are over an acre of ground, command unqualified expressions of admiration.

THE FLOWER GARDEN.

The third great feature in the open air (and nobody enters the houses at this season!) is the resplendent and bizarre effect of the Tulip and Wallflower beds upon the parterre by the Palm House. Kew has had nothing finer for several years, due, in part, to the fact that Tulips have been absent from these beds owing to an outbreak of disease. Now that this trouble has been overcome, one hopes that the Tulips will be utilised there in successive years. The tall-stemmed May varieties are employed, and every bed has a double complement of plants, as dwarf Phloxes, Arabis, Alyssum, Pansies and Violas, or other subjects. These flower from early in March, and then just when they pass out of their glory, the Tulips follow on. This carries on the flowering season until the summer bedding plants are ready to be planted. In this department—that of summer bedding—Kew cannot, or does not try to, equal the effect obtained at Hampton Court, for example. Certain of these Spring beds (little round ones between the large ovals) are filled with double Daisies, *Alyssum citrinum*, and Forget-me-not. The Daisies are Rob Roy, rich bright crimson, and Venus, a big flowered good white. They are not mixed. The Forget-me-not is *Myosotis alpestris*, of a nice habit. Among the Tulips are Europe, Harry J. Veitch (a grand dark shining red), Picotee, La Candeur, and Bouton d'Or.

The excellent effect produced by a massed display of the common Forget-me-not must be seen to be appreciated. One large bed in the open grounds, near the Cumberland Gate, while permanently devoted to evergreen trees (Firs), which are set well apart, is just now like a hazy cloud of palest blue. Clouds are usually above our heads, we know, but the metaphor must stand. We commend the humble Forget-me-not to the attention of flower gardeners. Later in the season, deeper blue waves will most possibly be seen, as furnished by drifts of *Callistephus chinensis*, the parent species of the China Asters. Thousands are planted in and around the beds of evergreens, and in the glades—at least, they have been in former years.

We liked the contrast, too, of the kidney-shaped beds of dwarf bushy Maples (*Acers*) on either side of one of the paths by the rock garden. One bed contains red-leaved Maples and yellow Violas; the other has yellow Maples and blue Violas. Tulip *La Merveille*, a noble cerise, over Sweet Williams, deserves a notice.

The best early Iris, other than *fiorentina*, is *I. aphylla nudicaulis*, 1ft high, with flowers of a good light blue. Of the shrubs in the same neighbourhood, one should mention the rare and, of course, but little known *Rosa Hugonis*, with a bushy, free habit of growth, leaves like those of the Scotch Rose, and pretty bright canary yellow, single flowers. The round bed of the silvery-leaved *Artemisia tridentata* has been pruned back, or rather sawn back, to within 1ft of the ground, and the pretty new growths are making swift headway. *Magnolia stellata* is over; but *Pyrus lobata*, a much larger subject, of course, continues the succession of white blossom. The flowers are over an inch across.

THE ROCK GARDEN.

Then we wander into the rock garden and find a host of interesting things. Prominent is a colony of the flat-flowered carmine-pink *Dianthus gelidus*. The new *Primula Cockburniana* has also a place—a cool, moist bottom space. Near it is the graceful, though dwarf, *Ranunculus amplexicaulis*; and of the more accessible alpine we find good patches of *Phlox amœna*, *Phlox divaricata*, and *Phlox stellaria lilacina*, the latter very dwarf, and close, and free. *Geum triflorum*, with drooping heads of coral; *Dicentra eximia*, pink, and always in flower; *Erysimum ochroleucum*, palest yellow; and *E. rupestre*, rich Alyssum-yellow; *Mertensia virginica*, difficult to get to do well, but finely flowered; with other showy sheets in *Dryas octopetala*, *Ethionema Shistosum* (pale pink), *Anemone narcissiflora* (white), *Senecio aureus*, *Orchis mascula* (purple), *Lithospermum prostratum*, *Nepeta Mussoni*, and *Alyssum saxatile citrinum* (of a soft sulphury yellow).

In the alpine house there are other little gems to be admired. *Pentstemon Menziesi*, from somewhere in North-west America! is a shrubby species, with flowers as large as those of a Snapdragon, and of a pale lavender-lilac colour. *Meconopsis aculeata* is here in 5in pots, in a somewhat loose, leafy compost. *Primula Veitchi* resembles an *obconica* variety. It is of a bright crimson, with an orange eye. *Lewisia cotyledon* is a gem that many would like to possess. The rosette of fleshy leaves resemble those of a *Cotyledon*, while the pink and white bell-shaped flowers are borne in terminal cymes of about a dozen each. The plant stands eight to nine inches high. *Orchis variegata* has the flowers peppered purple over pink. *Gentiana acaulis celestis* is much paler than the type, and has a pretty greenish-yellow throat. Other excellent plants are *Senecio lanatus*, with orange-red flowers of five to six in a cluster, growing 9in high; *Hyacinthus amethystinus*, very graceful, 1ft, pale blue; *Primula involucrata cœrulea*, pale bluish white; *Etrichium nanum*, like a very tiny *Myosotis* (this is kept fairly dry); *Wahlenbergia serpyllifolia*, large violet bells, and *Primula pulverulesta*, a strong and showy new species of the japonica type.

A brief glance at the hardy herbaceous plants must suffice; but several good, yet too much neglected things are in full blossom. *Euphorbia epithymoides* (or polychroma of the nurseries), furnishes intensely brilliant rounded masses of living yellow, 2ft high and the same in width. *Euphorbia palustris* is of the same bright yellow, but reaches 3ft to 4ft. *Euphorbia Wulfeni* is more remarkable for the character of its growth and leaves, which is very striking, than for its flowers. *Ononis rotundifolia* makes clumps of deep pink; *Nepeta Mussoni* is grey-purple; *Thermopsis montana*, yellow; and of the *Geranium* family, which is early into flower, the best are *sylvatica*, blue; *sylvatica rosea*, magenta-purple; *Phœnum*, purple-lake; *rivularis*, white; and *Wlassowianum*, pale blue.

Contretemps at Bath.

There was to have been a meeting of the Bath Gardeners' Mutual Improvement Society on May 22, but owing to some confusion in regard to dates the chairman, secretary, and majority of the members failed to put in an appearance, although about half-a-dozen members did so. There was the usual exhibition of horticultural produce. Mr. Clark, gardener to Mrs. Dobson, obtained 6 points for cut flowers, points for pot plants, and 6 points for a collection of vegetables. Mr. J. Brake, gardener to Mr. R. Kersley, 4 points for vegetables, and 3 points for cut flowers. The meeting was devoted to open discussion.

Trees and Shrubs.

The Double-flowering Cherry.

All trees, with comparatively few exceptions, are flowering trees; but in the gardening sense we mean only those with conspicuous or ornamental blossoms. Among them, as "W. P. W." in his seasonable article on page 450 remarked, the double-flowering Cherry (*Prunus Cerasus* fl.-pl.) stands well to the front; and so do the best forms of the pseudo-*Cerasus* or Bastard Cherry, among which are Watereri and James H. Veitch. These have large flowers of a pretty roseate hue, and they last longer than those of the common Cherry. The wild Gean (*Prunus Avium*) also furnishes a lovely tree, and in the same genus for early May-blossoming we would name the Bird-Cherry, *Prunus Padus*, and *P. acida* fl.-pl., a beautiful dwarf Cherry. Of course, as a wall shrub, no one can forego *Prunus triloba* fl.-pl., a Chinese species with rosy-white flowers, which come earlier than others we have named.

Flowering Species in a London Garden.

Scarcely a month has passed since we were mourning, as we thought, the lost beauty of our trees. After such severe weather



A Standard Double-flowering Cherry.

as we had in the early spring I do not think I have ever seen the trees look more beautiful, or furnish a greater profusion of bloom. In the garden under my care are some splendid Chestnuts, whose blooms are very fine. The Mountain Ash and the double Cherry are exceedingly good, and the Laburnums are heavily laden. The Siberian Crab is another tree that has flowered well. The Magnolias have been the greatest sufferers. The white Lilac has done well, but the pink and lilac-coloured have not been so good. The Cratæguses are a magnificent sight; the Guelder Roses, with their large balls of white flowers; *Weigelia rosea*, with long sprays of sweet flowers; *Wistaria sinensis*, just showing; and *Azalea mollis*, each are very fine, and produce the impression that we are in the country instead of town.—CHARLES HILL, Addison Road, Kensington, W.

Coloured Shrubs at the Temple.

At the Temple Show Messrs. Cheal and Sons, of Crawley, had a wonderful selection of coloured kinds, including Oaks, Planes, Beeches, Acers. Their *Aralia Mandschuricus foliis variegatis* was beautifully tinted. Big fine bushes of *Acer palmatum*, *Fagus sylvatica pendula* Reygerloo, very deep red; and *Acer campestre foliis maculatus*, were in evidence. Their ornamental Vines formed quite a feature, and lastly we would name a new and beautiful tree—*Actinidia Kolomikta*, with oval leaves, prettily tipped with pink, the rest of the leaf green.

The Temple Show.

(Continued from page 494.)

Hardy flowers in fine condition came from Mr. G. Reuthe, Keston, who presented a noteworthy exhibit. The background was made of Rhododendrons, such as *R. Falconeri* with grand foliage. Alpines were very much in evidence, and included some choice *Aubrietias*, *Cypripediums*, *Saxifragas*, and Tulips. The whole was beautifully arranged, and produced a fine effect.

Mr. R. C. Notcutt, Woodbridge, contributed hardy flowers. The *Cytisus* in variety were very striking, as were also Lilacs, *Meconopsis cambrica* fl.-pl. The baskets of *Phlox canadensis*, and Irises of the Germania type helped to make a nice exhibit.

Mr. Maurice Prichard, Christchurch, made a very attractive exhibit of hardy flowers, which could be seen to perfection. The Papavers were in grand form, especially *Papaver Livermere*. Scillas in their various colours were arranged in masses, while the tall spikes of *Eremuri* made a noble background.

Messrs. G. and A. Clark, Ltd., Dover, had an extensive display of hardy flowers. The Pyrethrums were very varied and well grown. The Geums, too, lent a pleasing tinge of colour. Carnations, too, were very well staged, as were also Tulips, Anemones, and Irises. Rock plants were nicely staged on either flank of the exhibit.

The Guildford Hardy Plant Nursery had a striking exhibit; there was quite a free grace about the exhibit that made it most inviting. Geums in variety, Trilliums, Trollius, Saponarias, Acers, and similar plants were most appropriately applied. The entire exhibit was most tastefully arranged and much appreciated by the flower lovers of this section.

Mr. J. R. Box, West Wickham, had a nicely arranged rock garden. The Saponarias were especially good, while the Primulas, Phloxes, and *Aubrietias* were distinctive, the whole arrangement was not overcrowded and consequently the effect good.

Messrs. J. Cheal and Sons, Crawley, contributed a fine example of rock gardening; the chief features were the huge mounds erected with suitable plants. It would be difficult to describe all the features of this exhibit, but all the well-known plants suitable for the purpose were to be seen.

The largest individual exhibit of hardy plants was probably that of Messrs. Cuthbert and Son, Highgate. This was banked up 10ft at the back with a cork bark formation. Rhododendrons and bamboos lined the back, and there were pretty groups of the new *Cypripedium ventricosum*, purple; also *Phlox canadensis*, *Calceolaria Golden Gem*, *Phlox Lammhami*, *Lilium testaceum*, and *L. canadensis flava*. Their *Lupines Moerheimi* is a pretty pink thing.

Lady Northcliffe, Sutton Place, Guildford (gardener, Mr. J. Goatley), exhibited a group of *Meconopsis racemosa* raised from seed. The plants displayed a good variation of blue shades.

Messrs. Barr and Sons, Covent Garden, had a most extensive exhibit of hardy flowers, which included large clusters of Irises, Gladioli, Trollius, &c., while the front was composed of dwarf alpine plants. The Irises were very fine, as were also a collection of Liliums; *Primula japonica* varieties were also a feature, as were also a good collection of *Ixias*.

Messrs. G. Jackman and Son, Woking, made a large exhibit of Azaleas, chiefly of the mollis type; also masses of early Gladioli, Pyrethrums, some good examples of *Saxifraga pyramidalis*, and a collection of dwarf-growing rock plants.

Messrs. Bakers, Wolverhampton, made an extensive exhibit of hardy flowers, the background being occupied with tall subjects, while the front was laid out with dwarf alpines. The masses of Liliums, *Primula pulverulenta*, *Aquilegias*, and Trollius in variety made attractive features.

Azaleas and Rhododendrons.

Never before—and we say it well knowing what it implies—have Messrs. R. and G. Cuthbert, of Southgate, N., staged such a glorious mass of the richest and most vividly coloured Azaleas. When we saw them they lighted up, just as a fire would have lit it up, a dull corner of the great orchid tent. All the most resplendent shades of the sunrise or sunset seemed to be materialised here. And the arrangement was perfect. On this occasion the firm had used standards to better effect than formerly, while dwarf and taller bush forms were also freely utilised. This, assuredly, was the brightest exhibit in the whole range of the show. A few of the finer varieties were Anthony Koster, rich yellow; Comte de Papadopoli, salmon-carmine; Fanny, single pink; *occidentalis magnifica*, soft cream, with orange throat; *occidentalis graciosa*, bluish-cream; Bedouin, a rich good pink; Nancy Waterer, a golden coloured single; and Peter Koster.

The far-famed firm of Messrs. John Waterer and Sons, Ltd., Bagshot, contributed Rhododendrons under canvas. The beautiful Pink Pearl was in the centre, and others were Sappho, Mrs. Holford, Frederick Waterer, Mrs. Holland, and Cynthia.

Messrs. H. Lane and Son, Great Berkhamsted, sent a

collection of Rhododendrons in pots, also a few hardy Azaleas. In the former class good plants of Cynthia, Scipio, Blandyanum, and Lady Grey Egerton were noted.

Carnations.

The well-known Carnation grower, Mr. W. H. Lancashire, Victoria Vineries, Guernsey, had a table of flowers arranged in tall vases. The blooms were splendid, especially White Perfection, Mrs. H. Burnett, the true colour, President, Robert Craig, and a number of promising seedlings.

Excellent flowers also came from Mr. A. F. Dutton, Iver, Bucks, with Rose-pink Enchantress, Harlowarden, Winsor, and Pink Imperial of a good carmine colour. Mr. Dutton was highly delighted that Her Majesty should have taken one of his trade catalogues for reference.

Messrs. T. S. Ware, Ltd., Feltham, also had a representative collection.

Mr. H. Burnett, Guernsey, had his new Carnation Marmion, as fine as ever; also Mikado, Aurora, deep buff with carmine splashes, and Mrs. H. Burnett, a good pink.

Mr. C. Englemann, Saffron Walden, had Rose-pink Enchantress, Melody (light pink Lawson), Robt. Craig, and Lient. Peary.

Mr. C. F. Waters, Balcombe, Sussex, contributed Britannia, Pride of Exmouth, Glendale, Victory, and Mrs. Burnett. He also had a mass of the Malmaison Princess of Wales.

Mr. W. H. Page, Tangley Nurseries, Hampton, had well-coloured flowers of Winsor, Aristocrat, Lady Bountiful, Fair Maid, Britannia, Gov. Roosevelt, Enchantress, Mrs. Lawson, and Beacon, exceedingly bright and good. Rose-pink Enchantress was also very pleasing.

Quite the largest display came from Messrs. Hugh Low and Co., Bush Hill Park, Enfield. They filled over 21ft run of 4ft tabling, having tall mirrors as a background, festooned with Smilax. The flowers, which were good, were arranged in baskets and as pyramids, also in vases, so that, with the wealth of Maidenhair ferns, the *tout ensemble* was highly delightful. The best varieties were Rose-pink Enchantress, White Perfection, Mrs. Burnett, Victory, Winsor, and Britannia.

Messrs. Bell and Sheldon, Castel Nurseries, Guernsey, brought beautifully strong large perpetual flowerers, Sensation has a buff centre, flaked carmine, with white edge. Mrs. Lawson, Lady Bountiful, Winsor, Aristocrat, Enchantress, and The President were each splendid.

Mr. S. Mortimer, Rowledge, Farnham, Surrey, staged good bunches of Fair Maid, Victory, Mrs. T. W. Lawson, Enchantress, and Jessica.

From Mr. E. A. Johnstone, Groombridge, Kent (gardener, Mr. J. A. Paskett), came an exhibit of Carnations. Burrswood Scarlet, a variety of fine form, scarlet in colour, and evidently robust in habit.

Mr. C. H. Herbert, Acocks Green, Birmingham, had an exhibit of perpetual-flowering Pink, called Progress, a rosy heliotrope in colour that gives one a suspicion of being a seedling variety. At all events it was most free in flowering.

C. F. Raphael, Esq. (gardener, Mr. G. Grubb), Porter's Park, Shenley, Herts, produced a very pretty group of really well grown, brightly flowered Malmaisons. The plants were in four varieties, as the old Blush, also Princess of Wales, King Arthur (scarlet), and Maggie Hodgson, a dark crimson. These were mostly large plants in 8in pots, bearing from eight to a dozen blooms apiece. Altogether there were fully 220 plants, mounded up in a space of as many square feet.

W. James, Esq. (gardener, Mr. W. H. Smith), Chichester, had a very meritorious group of Malmaisons Princess of Wales, well grown and full of bloom.

Pansies and Violas.

Mr. J. Forbes, Hawick, N.B., sent some glorious spikes of Pentstemons, which were remarkably well developed, also a good collection of fancy Pansies and Violas. The latter were in splendid form, the colours being very bright, and the arrangement in vases gave an idea of their value in a bed.

Messrs. Lister and Son, Rothsay, had a nice exhibit of Pansies and Violas. The latter were very large, but effectually destroyed by their paper collars, at all times bad enough in a Pansy, but beyond acknowledgement in a Viola. The exhibit was most interesting from an exhibitor's point of view, the masses of Violas being especially good.

From Messrs. Bakers, Wolverhampton, came a splendid display of Violas arranged with Maidenhair ferns. The general effect was good, while the flowers were beyond reproach. The best sprays were undoubtedly Mary Burnie, Cochrane, Ajax, Peace, and Admiral of the Blues. The cool morning suited the flowers splendidly.

Mr. H. H. Crane, Highgate, had a good display of Violas arranged in bowls of wet sand. The blooms were very large and of good colour. A few of the best were Daisy J. Wright, Elsie L. Haycock, Mabel, May, Lady Grant, and Harry Bamber.

Begonias.

A most imposing display was that from Messrs. Ware, Ltd., of Feltham. Nothing could be finer than their Maud Holland, salmon-orange; Water-Lily, white; and Mary Pope, white. Countess of Dartmouth is primrose, with blush suffusion; Rhoda Pope is soft pink; Mrs. A. P. Brandt is also soft pink, finely waved; Beatrice Pardy is deep pink with white edge, 6in in diameter; while King Edward is dark crimson; Mrs. Moger is salmon; and Sonning Joy a deep carmine. These were no better than many others, for all were perfect here. We never saw such high quality.

Mr. A. Ll. Gwillim, Cambria Nursery, New Eltham, Kent, staged high-class flowering Begonias. Mrs. H. Harris is a huge variety, with scarlet flowers, and is new. Others are Mermaid, bronzy scarlet; Margaret Gwillim, clear yellow; Mrs. Moger, Eltham Glory, and Mary Pope. The plants were very superior.

Messrs. Blackmore and Langdon, Twerton Hill Nursery, Bath, had a magnificent display, the plants well grown and full of large flowers. They are the pioneers of the fringed singles, which are so pretty. Among the doubles were Millicent, a large salmon pink; King Alphonso, crimson; Rose Queen, very fine; Pink Pearl, deep cerise, quite a new colour; Mrs. W. L. Ainslie, yellow; Marchioness of Bath and Snowdrift, both whites. Countess of Ilchester is pale creamy, and Mrs. W. P. Neal is soft blush. They had three baskets filled with Begonias, as Fleur de Chrysantheme, drooping pink; Alice Manning, double yellow; and Carminia, rich crimson.

Mr. John R. Box, Croydon, had some good varieties of doubles, nicely grown. One called Alice Briggs was golden apricot, with red yellow edges. Mrs. Webster is blush pink with carmine Picotee edge.

Messrs. John Laing and Sons, Forest Hill, still maintain their name as good growers of Begonias. Their plants were not quite so fine this time, but in Hon. T. A. Brassey we have a splendid white. Lady Donaldson is another white; with Prince Fushimi, salmon; and Sir Howard Vincent, scarlet crimson.

Clematises.

Mr. L. R. Russell, of Richmond, also had a nice selection, including Marcel Moser, Jackmanni, Snow-white, Henryi, The Queen, Ville de Lyon, and Beauty of Worcester.

Two groups of Clematises, as usual, were provided, though other plants were included in various mixed groups. Messrs. Richard Smith and Co., Worcester, filled considerable space with balloon-trained and other specimens. One would have thought that the balloons would nowadays be out of fashion, in favour of the more upright style. The plants were strong and full of flower, comprising the varieties Beauty of Worcester, Marie Lefebvre, Nelly Moser, King Edward, President, Sensation, and Lucy Lemoine. A selection of the best kinds of American tree Clematises was dispersed among the Clematises.

Messrs. Jackman and Son, Woking, staged pyramidally-grown plants on the opposite side of the tent. All were vigorous and flower-laden. We observed with interest such good kinds as Jackmanni rubra, Fairie Queens, Lord Neville, Ville de Lyon, Duchess of Edinburgh, and Princess of Wales.

Tulips.

Messrs. Wallace and Co., Kilnfield, Colchester, were represented by a collection of the best kinds, among which were Europe, La Candeur, Bouton d'Or, Suzanne, Walter T. Ware, Orange Beauty, Orange King, Inglescombe Yellow, and Scarlet Empress.

Messrs. R. H. Bath, The Floral Farms, Wisbech, had very superior Tulips, among which we would name Edmee, pink; Miss Willmott, a good yellow; Mr. Farncombe Sanders, rich cerise; White Queen; Flamingo, a distinct pale blush, very superior; and Mauve Clair, of a greyish mauve white, very strong.

Messrs. Alex. Dickson and Sons, Ltd., Belfast, were represented by a fine display of Tulips. The flowers were erect, and made a good feature. A few of the most striking were Ravenswing, Mrs. Stanley, Jubilee, Orange King (remarkably fine), John Ruskin, May Queen, King's Court, Isabella, and Striped Beauty. The late season evidently suited the exhibitor, for the substance of the flowers was remarkable.

Messrs. Hogg and Robertson presented a fine display of late-flowering Tulips. The blooms were truly grand, while the varieties were well represented.

Mr. Alex. M. Wilson, East Keel Manor, Spilsby, also contributed a nice clean collection of flowers.

A good collection of late-flowering Tulips came from Messrs. W. Bull and Sons, Chelsea. The flowers were in good form, all the leading varieties being represented.

From Messrs. Barr and Sons, King Street, Covent Garden,

came a glorious bank of Tulips, which included the Darwin types, Parrot varieties, a good collection of English Tulips, all arranged with sufficient foliage to make them effective; a front of *Ficus repens* added to the decorative effect.

A fine interesting exhibit of florists' Tulips came from Mr. J. Walker, Thame. The flowers were mostly named, and denoted good culture; but doubtless the single blooms on boards would interest Tulip fanciers more, and at the same time they cannot be described as decorative flowers.

Sarracenias.

Mr. Bruce, of Chorlton-cum-Hardy, Manchester, was once again seen in his old place, at the west end of tent No. 4. His group of *Sarracenias* and other insectivorous plants, including several kinds of *Droseras* or Sundews, also the Cobra-headed fly-catcher, *Darlingtonia californica*, were exceedingly fresh, and also prettily staged. The plants were apparently not so numerous as on some former occasions, but were as fresh and well grown as we ever remember to have seen them. Despite the fact that some of the best plants had been left at home, owing to the ravages and damage done by some unseen insect pest, there were still handsome plants of *Sarracenia flava* (yellow), *Drummondii* (white veined), *ornata* (emerald green), *Sanderiana* (with rich crimson lids to the long tubular leaves); also *Pattersoni*, 15in to 18in high (crimson and green), together with the dwarf *Williamsi*, *purpurea* and *psittacina*.

Miscellaneous Greenhouse Plants.

Quite one of the most interesting features of the show was the collection of sixteen standard plants of the new hybrid scented-leaved *Pelargonium Clorinda*, introduced by Messrs. Cannell, and here shown by the Hon. Vicary Gibbs, of Aldenham House. These plants were in 8in pots, stood about 6ft high, with rounded heads which were 3ft through. Each plant bore from fifty or more luxuriant trusses of the rich cerise-pink flowers. Mr. Edwin Beckett, the gardener, is to be congratulated on another remarkable success. The ground beneath the plants was carpeted with white *Spiræas*.

Another of the most interesting displays was the fine exhibit of flowers staged by Messrs. Sutton and Sons, the King's seedsmen, Reading. This exhibit was arranged with excellent taste and occupied the entire width of the end of the large tent where the orchids were shown. In spite of the trying season the many varieties of flowers were just at perfection. There were splendid groups of *Begonias*, *Calceolarias*, *Cineraria stellata*, *Gloxinias*, *Nemesias*, &c. The range of colour is unrestricted, and the plants could not be healthier or more floriferous. Sutton's *Calceolarias* are remarkable for the diversity of colour, and the immense size and profusion of flowers on very dwarf plants. Their *Gloxinias* were superb. The white *Gloxinia*, *Her Majesty*, is absolutely pure, and the spotted hybrids extremely attractive. *Cineraria stellata*, the Star *Cineraria*, has become deservedly popular both as a pot plant for the decoration of the conservatory as well as for cutting, and was well shown. Groups of some very lovely *Schizanthuses* and *Streptocarpuses* enhanced the attractiveness of the exhibit.

A grandly cultivated display of the Bottle-brush plant, *Metrosideros floribunda*, was brought forward by Messrs. Hugh Low and Co., Bush Hill Park, Enfield. This firm has done a very great deal to resuscitate interest in the *Metrosideros*, of which they have quite the best stock of plants. These are to be had as bushes in various sizes, all laden with their long-lasting red flower spikes; and also as round-headed standards.

Messrs. James Carter and Co., seedsmen to His Majesty the King, occupied a large portion of the central space of tent No. 1, where their display exhibited many fine features. This well-known firm gave great prominence to their Brilliant Prize *Cinerarias*, the only strain, we were told, that has been awarded four gold medals of the Royal Botanic Society, as well as numerous prizes of the Royal Horticultural Society. The colours were lovely, the flowers of which must be quite double the size one was accustomed to see a few years since. We noticed a fine lot of *Gloxinias*, which for size and beauty of flowers seem to deserve the description given them as "Carter's Invincible Prize." *Schizanthuses* grown as basket plants made a distinct novelty, and furnished one of the most charming basket plants for conservatory decoration. Groups of *Cineraria stellata*, including the new cactus forms (from the same collection for which Messrs. Carter were awarded a special gold medal at the Royal Botanic Society), also enormous *Petunias*, *Begonias*, dainty *Carnations*, and a remarkably well-planned rockery, covered with all sorts of pretty alpine, was a centre of attraction.

A beautiful table of *Streptocarpus* came from the Hon. Vicary Gibbs, Aldenham House, Elstree (gardener, Mr. E. Beckett). The plants, needless to say, were well grown, and the colours arranged in blocks proved most attractive.

Messrs. Webb and Sons, Stourbridge, occupied a large space with an exhibit of herbaceous *Calceolarias*. The plants were

splendidly grown, while the range of colours denoted one of the finest strains extant.

The Horticultural College, Swanley, made a display of *Schizanthus retusus*, which were well developed and very bright in colour.

From the Horticultural College, Studley, came a small collection of *Gloxinias*, which did not do credit to the Temple Show. The space could have been much better occupied.

Messrs. Jas. Veitch and Sons, Ltd., Chelsea, occupied a large space with their miscellaneous exhibit. The splendid plants of *Schizanthus* hybrids were much admired. *Letanias* *Drap d'Or* and Chelsea Gem arrested attention, as did also *Coreopsis* *Granti*, *Amphicome* *Emodi*, hybrid *Gerberas*, *Streptocarpus* in all colours, *Cinerarias* in various colours, with blocks of *Lobelia tenuior* and *Kalanchoe Kewensis*, and the orange-red *K. flammea*. The whole display was enhanced by the addition of ferns and suitable palms.

Decorative *Pelargoniums* from Messrs. Heath and Son, Cheltenham, formed a fine bank, but doubtless the exhibitors were cramped for space, otherwise they would not have attempted to place two plants into a space barely sufficient for one. The plants were, however, well grown and flowered too, the best varieties being *Madam Ramelet*, *Rubra superba*, *Dr. Huess*, *Vulcan*, *M. Cosson*, and *Jean Anna Brilow*.

Wickham Noakes, Esq. (gardener, Mr. W. Howarth), Croydon, staged a bank of superbly-grown plants, 2ft across or more, and sturdy. A fine lot.

Messrs. Cannell and Sons, Swanley, had a mass of *Fuchsias*, including the large double-flowered *Shower of Stars* (why stars? since the flower is purple and crimson); and *Coralie*, of fulgens type, having scarlet flowers. Their rambler *Roses*, *Hydrangea Hortensia rosea*, and *Calceolarias* were each very fine, particularly the latter, which were perfect. They also had a collection of *Cacti*.

J. A. Young, Esq. (gardener, Mr. G. H. Stone), Stone House, Putney, had a close packed group of *Cineraria stellata* varieties. These were very good and highly varied.

Messrs. Hugh Low and Co., Bush Hill Park, had *Chorozema flava*, *Lotus peliorynchus*, *Azalea roseiflora* (hardy), *Aotus gracillima*, *Dracena Victoria*, pink *Spiræas*, *Hydrangea rosea*, blue variety, *Aphelexis miacrantha purpurea*, *Fabiana imbricata* (white), with *Gerberas* and their new *Ampelopsis Lowi*.

Messrs. Ker and Sons, Aigburth Nursery, Liverpool, had a fairly large representation of fresh, boldly flowered plants. There was also great diversity. *Queen of Spain* is nearly white, only touched with carmine on the top petals; *Empress* is rich deep crimson; *Jasper* is carmine-rose; *Virgin Queen* is a beautifully formed white, touched crimson; *Margot* is deep pink; *Sunset*, rich scarlet; and *Nestor*, crimson-scarlet, with white apices. These represented some of the best named varieties.

The only group of *Cannas* came from Messrs. Cannell and Sons, Swanley, who seem to be developing the yellows more. We would name *C. Radi*, *R. Wallace*, *William Tell*, *Julius Mey*, and *J. B. Van der Schoot* as the finest yellows and golds. *Black Prince* is a rich crimson, *Venus* is carmine, and *Hesperide* is orange-red.

Zonal *Pelargoniums* from Mr. V. Slade, Taunton, were very bright; the trusses were arranged in masses, and included both single and double forms. The flowers were very bright and fresh.

Messrs. Jas. Garraway and Son, Bristol, exhibited their well-known strain of *Schizanthus* hybrids. The colours are bright and clearly defined, while the habit of the plants left little to be desired.

Gloxinias came in fine form from Messrs. J. Peed and Son, West Norwood. The plants were well developed, and the flowers large. A really fine strain that was nicely staged with ferns and palms.

Mr. W. R. Chaplin, Waltham Cross, exhibited his strain of single *Petunias*, all grown in 3in pots. The flowers were very fine indeed, while the colours left little to be desired.

A mixed collection of plants came from Mr. E. Ascherson, Esq., Charing, Kent (gardener, Mr. Pitts). The best features were the *Phyllocacti*, herbaceous *Calceolarias*, and some well-flowered plants of *Calla Eliottiana*.

Miscellaneous Florists' Flowers

Under this heading we may perhaps classify the *Chatham Island Forget-me-not*, *Myosotidium nobile*, which grows out of doors in Cornwall, however. It was well shown by Mr. J. D. Enys, of Enys, Penryn, who was one of the first to prominently bring this plant to notice. They were exhibited in large tubs, and were well flowered and in the most vigorous health.

Messrs. Veitch had an open-air group of *Roses*, standard *Bays*, *Arundo Donax variegata*, *Schizanthuses*, *Clematises*, various *Primulas*, as *pulverulenta*, *Cockburniana*, *Veitchii*, also some of their new *Vitis*.

Messrs. Carter Page and Co., London Wall, staged an

exhibit of Cactus Dahlias, Antirrhinums, and annuals. The Cactus Dahlias were very good, considering they were pot grown. The best were Harlequin, Dreadnought, Daisy Easton, Hyacinth, and Kremhilde. The annuals were very attractive.

Messrs. Reamsbottom and Co., Geashill, King's Co., had a small display of their noted St. Bridget Anemones. The colours were exceedingly bright, and the flowers large.

Messrs. Dobbie and Co., Rothesay, astonished the natives by exhibiting a fine collection of early-flowering Chrysanthemums, which for growth and colour would rival anything seen in the autumn, excellent bunches of Nina Blick, Crimson Marie Masse, Carrie, Polly, Mrs. Willis, and Ernest Baltet. Violas and Pansies were also splendidly staged, as were also a group of Sweet Peas, which were of fine colour.

Mr. P. Lilley, Guernsey, sent a table of Irises, Gladioli, Tulips, Ixias, and Sparaxis. The whole was lightly arranged. Prominent were Iris Susiana, Ranunculus in various colours, and Tulips.

Messrs. Jarman and Co., Chard, exhibited their well-known strain of Sweet Sultans, the flowers of which are larger than the ordinary type. The appropriate names of The Bride, white; Bridegroom, mauve, and Bridesmaid, a delicate primrose.

Messrs. Gilbert and Son, Dyke, Bourne, Lincs., had a fine show of Anemones, which included both single and double varieties, King of the Scarletts being especially good, also the white variety, The Bride.

Messrs. R. Smith and Co., Worcester, made a display of late flowering Tulips, early Gladioli in variety, some well grown Anemones, and perpetual-flowering Carnations. The exhibit was very nicely arranged.

From the King's Acre Nurseries, Ltd., Hereford, came a large display of well-grown plants, which were arranged in bays. A collection of Heliotropes was good, as were also some Petunias, a bright rosy-red called Countess of Chesterfield. The same firm also contributed a fine collection of rock and alpine plants arranged naturally.

Messrs. W. and J. Brown, Stamford, made a miscellaneous display, which included Roses of the climbing type, Verbenas in masses, with well grown plants of Verbenas Norma, Miss Willmott, Aurora Borealis, and Lovely Blue. Some masses of Olearia stellata were attractive, while Acers, Lilacs, &c., made a good background. The front was filled with the cactus Geraniums arranged in moss.

Mr. W. J. Godfrey, Exmouth, staged decorative Pelargoniums, and his well-known varieties of Oriental Poppies. The former were well-grown plants, the the following varieties appealed to the eye at once: Mars, Mrs. W. J. Godfrey, Dora Godfrey, Beauty, and Godfrey's Pride. The Poppies excited the admiration of all the ladies present, and it only required a burst of sunshine to open the flowers at the opening of the show.

Messrs. Pulham and Son, 71, Newman Street, London, W., had a rockery exhibit, or groups of rockery in a setting of grass, with a wall-like shelving rocky mass, all planted with alpine. It was very cleverly executed, as became this firm of rockwork builders.

Fruit.

Messrs. Rivers and Son, Sawbridgeworth, filled their usual space with pot fruit trees—Nectarines, Peaches, and Cherries, also fruiting Citruses, as Oranges and Grape Fruits. Young pot Figs were also in evidence, the variety being Violette Sepor, very fine for early work. The Nectarines were fully a fortnight later than usual, but quite as highly coloured, and the trees were well furnished both with young wood and fruits. Among the Peaches were Duke of York, Duchess of Cornwall, and of Nectarines, Cardinal was good. The Cherries were Early Rivers (black) and Frogmore Bigarreau.

Messrs. Laxton Bros., Bedford, had a splendid exhibit of Strawberries in baskets, also Peaches and Nectarines. The Strawberries were represented by baskets of Royal Sovereign, Laxton's Epicure, Bedford Champion, and Pine-apple. Epicure grown in pots were wonderfully good. Beautiful baskets of Early Alexander Peaches and Cardinal Nectarines were also staged, while Figs also added to the display.

From Messrs. G. Bunyard and Co., Ltd., Maidstone, came a wonderful collection of Apples, backed with Cherries in pots. The former were wonderfully well preserved, the best being Newton Wonder, Tibbett's Pearmain, Lane's Prince Albert, Mère de Ménage, Winter Greening, Ontario, and Prince Arthur. The exhibit excited much attention from the exhibitors.

Vegetables.

Messrs. Sutton and Sons exhibited in tent No. 2 a very effective and artistically-arranged exhibit of Potatoes of this year's growth. These, we learned, were raised on May 20 from sets planted on February 26, and were grown under ordinary frame culture. Their appearance speaks volumes for the care bestowed upon them, and the healthy and vigorous nature of the

stocks from which they were grown. The exhibit includes such well-known varieties as May Queen, Ringleader, Ninetyfold, Epicure, Windsor Castle, Reliance, Satisfaction, Superlative, and Abundance, the tubers of each kind being perfect specimens. With merely the aid of ordinary frame culture excellent crops of the best sorts of Potatoes can be grown at home at this early time of the year. They also staged a most interesting collection of wild species from various parts of the world, which will well repay a careful examination.

Messrs. Watkins and Simpson, Tavistock Street, Covent Garden, sent an exhibit of vegetables grown in this country under the French system. The exhibit included Carrots, Turnips, Lettuces, Cabbages, and some very fine Cauliflowers named Early Six Weeks. The whole were packed in crates after the French style, and were on a par with what we see in Covent Garden Market every morning at this season.

From the Thatcham Fruit and Flower Farm, Newbury, came a collection of salads, such as Radishes, Carrots, Turnips, Lettuces, &c., all nicely staged in a bed of Parsley. The produce was grown on the French system, and was perhaps almost equal to fair Covent Garden stuff.

After the extraordinary reports one sees in the daily press about Asparagus, it is pleasing to note that we can still make a sensational display of Asparagus, for this term could well be applied to the bundles staged by Mr. Godfrey, Colchester; the growth was truly remarkable.

Official List of Awards.

VEITCHIAN CUP to F. Mentieth Ogilvie.

GOLD MEDALS to Messrs. J. Veitch and Sons, W. Cutbush and Son, Sauder and Sons, Charlesworth and Co., Major G. L. Holford, and Hugh Low and Co.

SILVER CUPS to Sir Jeremiah Colman, Bart., Hon. Vicary Gibbs, Sutton and Sons, Barr and Sons, Geo. Bunyard and Co., J. Waterer and Sons, May and Sons, L. R. Russell, R. Smith and Co., Chas. Turner, Paul and Son, Jackman and Son, Pulham and Son, J. Cheal and Sons, W. Paul and Son, T. Cripps and Son, R. P. Ker, Amos Perry, R. and G. Cuthbert, C. F. Raphael, Blackmore and Langdon, R. Wallace and Co., W. James, J. Cypher and Sons, and M. Prichard.

SILVER-GILT KNIGHTIAN MEDALS to Messrs. Rivers and Laxton Bros.

SILVER-GILT FLORA MEDALS to Messrs. T. S. Ware, Ltd., Cannell and Sons, Carter and Co., Geo. Mount, Hobbies, Ltd., G. Reuthe, A. Dickson and Sons, J. Hill and Son, A. J. A. Bruce, Armstrong and Brown, H. Burnett, A. F. Dutton, and R. Ashworth.

SILVER-GILT BANKSIAN MEDALS to Messrs. J. Peed and Son, "Bakers," J. R. Box, the Craven Nursery Co., Fromow and Sons, and R. C. Notcutt.

SILVER KNIGHTIAN MEDALS to Thatcham Fruit Farm, and to Mr. Stephenson.

SILVER FLORA MEDALS to Messrs. F. Cant and Co., D. Russell and Son, J. Laing and Sons, C. W. Breadmore, J. R. Upton, Webb and Son, B. R. Cant and Sons, Dobbie and Co., Hogg and Robertson, A. and J. McBean, J. W. Moore, Ltd., and R. Gill.

SILVER LINDLEY MEDAL to F. Mentieth Ogilvie.

SILVER BANKSIAN MEDALS to Messrs. J. D. Enys, W. P. Horton, King's Acre Nurseries Co., A. M. Wilson, W. Bull and Sons, H. Crane, Misses Hopkins, F. Lilley and Co., G. Prince, Watkins and Simpson, R. H. Bath, Ltd., A. L. Gwillim, A. J. Harwood, T. Jannock, B. Ladham, W. H. Page, and Bell and Sheldon.

Certificates and Awards of Merit.

Azalea occidentalis graciosa (E. and G. Cuthbert).—A splendid variety, with clusters of large, well-formed flowers, coloured soft primrose and suffused with blush. A.M.

Begonia Empress Marie (Blackmore and Langdon, Bath).—A superb double tuberous variety, pure white. A.M.

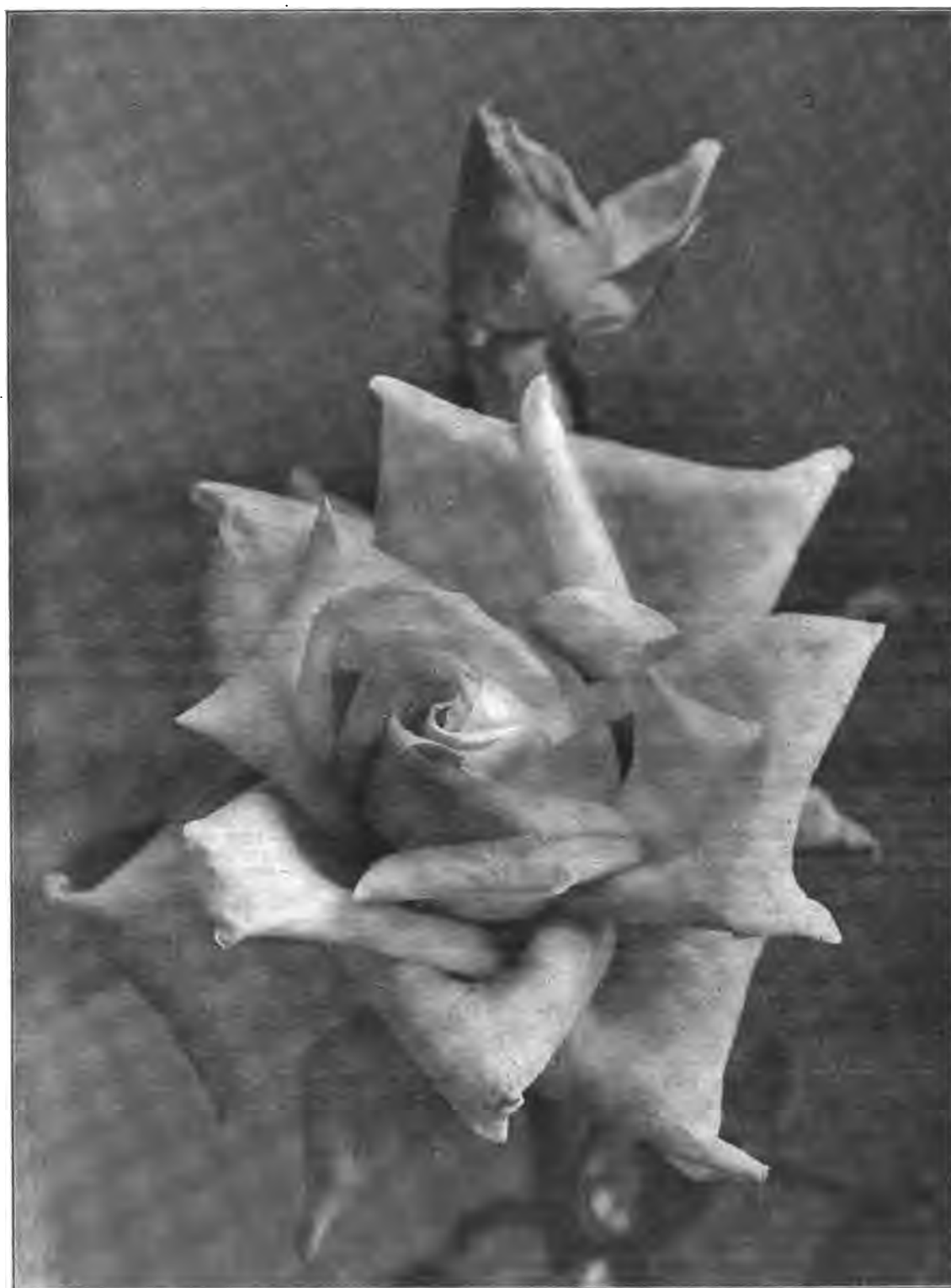
Cattleya Mendeli His Majesty (Francis Wellesley, Esq.).—This is a very large and handsome flower, with broad thick petals. The colouring is of the best. F.C.C.

Cattleya Mossia Le Président (Hugh Low and Co.).—Very large and handsome, of a deep mauve pink, with yolk-of-egg yellow throat, the front of the lip maroon-purple, slightly flaked white, and edged rosy pink. A.M.

Cirrhopetalum pulchrum (Sir Jeremiah Colman, Bart.).—The flowers are of a light ruddy bronze. A.M.

Croton, Fred Sander.—A nice dwarf-growing, trilobate form, with brightest yellow leaves, tipped with green. A.M.

Cypripedium ventricosum (Cutbush and Son).—A hardy species after the style of *C. spectabile*, but having a crimson purple pouch. F.C.C.



Wm. Paul and Son's New H.T. Rose, Elaine.

(See special note; also Temple Show report.)

Dimorphotheca aurantiaca (Barr and Sons).—A bright deep orange coloured composite, with black disc. The flowers are very attractive, borne on slender erect stems, 1ft high, and are 2½in broad. It is a good acquisition; a half-hardy annual from Namaqualand. A.M.

Dracena Doucetti de Grooti (James Veitch and Sons, Ltd.).—Two noble specimens were shown. They are brighter than Doucetti, the base of the leaves being purplish pink, and the edges bright yellow, with the centre green. A splendidly decorative variety. F.C.C.

Lutio cattleya Elva, Westonbirt variety (Major Holford).—Of good size, thick substance, deep velvety purple lip, with bright yellow on either side of the throat; the petals and sepals rich bright rosy-purple. F.C.C.

Odontioda Charlesworthii (Charlesworth and Co., Bradford).—Parentage: *Cochlioda Noetzliana* × *Odontoglossum Harryanum*. Flowers 2½in deep and as broad, stiff in substance, graceful in form, coloured rich bright crimson scarlet, with gold crest on lip. The Harryanum is quite overcome in the colouring. F.C.C.

Odontioda St. Fuscian (Mons. H. Graire, Amiens).—Parentage: *Cochlioda Noetzliana* × *Odontoglossum Adrianae*. Beautiful and bright flowers of good form, segments acute, substance stiff, waved rich apricot over gold, and edged claret. A.M.

Odontoglossum × *Hibernicum* (Charlesworth and Co.).—Parentage: *O. Halli* × *hastilabium*. After the style of excellens or grande, with spreading narrow segments, 3in across either way. These are brown, tipped sulphury yellow. The apex of the lip is white. A.M.

Odontoglossum crispum Kenneth (Norman C. Cookson, Esq.).—Flowers of good size and form, two-thirds coloured a bright bronze red tint, over a white ground. A.M.

Odontoglossum erimium Queen Alexandra (Ch. Vuylsteke, Loochristi, Belgium).—Very large and handsome, coloured bronzy light purple, edged white. F.C.C.

Odontoglossum illustre, var. luxuriosum (Ch. Vuylsteke).—Not seen.

Odontoglossum laudatum (Ch. Vuylsteke).—Flowers strong and good, deeper in colour than the foregoing, with rich gold crest on lip. A.M.

Odontoglossum Lindeni (Sir Jeremiah Colman, Bart.).—A bright yellow species, with flowers 1½in in diameter, segments crisped. A.M.

Paeonia de ora alba (Wallace and Co., Colchester).—A shrubby Paeonia, with cup-shaped single white flowers, exceedingly beautiful and good. A.M.

Rose Elaine (Wm. Paul and Son, Waltham Cross).—A splendid h.t., of perfect form, and coloured soft pale yellow. We figure this variety in the present issue. A.M.

Rose, Tausendschön (Wm. Paul and Son, and Hobbies, Ltd.).—Quite one of the loveliest and best of new rambler Roses. It has taken Covent Garden Market by storm. It is vigorous, very free-flowering, and so beautiful; the clusters large and ample, the flowers with wavy bright cerise petals, semi-double when full open, and about 3½in in diameter. The clusters are not crowded. A.M.

Rose, White Dorothy (Benjamin Cant and Sons, Colchester).—A sport from Dorothy Perkins. It has a slight blush tint in the newly opened state, but goes off quite white. A.M.

Tulip, Duchess of Westminster (Alex. Dickson and Sons, Newtownards).—A tall-stemmed Darwin variety, with thick petals, and of nice globe-shape. The colour is a good salmon-cerise or salmon-carmine, yellow base, with violet zone above. A.M.

Tulip, Walter T. Ware (Walter T. Ware, Ltd., Bath).—A rich gorgeous yellow Darwin Tulip. F.C.C.

A New H.T. Rose.

Messrs. Wm. Paul and Son, the Royal Nurseries, Waltham Cross, continue to issue novelties of their pedigree Roses. In Elaine we have a magnificent high-centred, large, and full flower of palest lemon white, the buds being slightly tipped with flesh pink and rose. It is in the way of Souvenir de Madame Eugene Verdier, but the flowers are not so much shaded with yellow. The petals are reflexed, and the outer ones pointed, giving to the flower a distinct cactus-like appearance when fully developed. The growth is good and the habit branching, the whole plant being covered with flowering shoots, and as the blossoms are produced in great abundance the variety possesses in a marked degree the essential properties of a decorative Rose, whilst the individual flower is well up to the exhibition standard. The illustration of a flower, lent by the kindness of Messrs. Wm. Paul and Son, will serve to show the good character of it.

Young Gardeners' Domain.

♦♦ The prize this week is awarded to Mr. F. Green, 5, Ganton Place, Woodhouse Street, Leeds, for the following:—

The Beginning.

The most critical time for a gardener is when he is desirous of leaving his last foreman's place and launching out as head. What sort of a place shall I take? is what troubles him. This is where the great mistake occurs. If he has been foreman in a large garden he thinks of such a place for himself, and does not care for a situation where there are, say, two or three kept. But all men are not like this. There are cases of men who have taken the first chance offered, and have lived to regret their hastiness. But what about the other side of the question? We have got brilliant men to-day who began in small gardens, and have risen to high positions through diligence and merit. Surely what others have done can be done again. Some will say, "Once you get into a small place you are tied down; and that preference will be given to foremen from large gardens." But is it correct? I think not. In some cases this may have been done, but the employers of to-day are far more likely to entertain an application from a head gardener of two or three years standing than from a foreman with the same length of reference. Of course I quite agree it is far nicer to go up the ladder three or four steps at a time than singly; but one may waste the best years of one's life waiting for the place which may never come. Some of the lesser places are far more comfortable to gardeners, and there is less worry; and look what a spur it is to out-do your neighbour in every way you can, especially if your lot is cast alongside some large place. Does it not urge you to try and get your productions as good as theirs, or even better? Then again, the advantage of the small place compels you to make the most of everything. You cannot afford to foster a sickly crop, but must try and replace it with something that will pay. This especially applies to plants. You haven't room for a large batch of stuff, so you have to grow the few you have to perfection, and what a delight it is to the true gardener to grow his own stuff! I am sure the head in a large garden cannot feel the pride of his lesser brother over a fine batch of, say, *Calceolarias*, *Cyclamens*, or *Cinerarias*, because he has not had all the task in his own hands. Of course, we know he has the direction of these things, but there is a difference between telling others how to do a thing and doing it oneself. Thus I think a man does himself an injustice if he lets sentiment rob him of the comfortable and good work that is offered him as head in smaller places.—LAVER, Leeds.

The Value of Kitchen Garden Experience.

The value of a good kitchen garden experience is undoubted. This branch of the profession is one that a young journeyman should learn as much as possible of. One should not be in too much haste to get an inside situation. The general cry of all the young fellows I have met is for a situation inside, even before they have been a year outside. There are many to-day who think it is not necessary to give much attention to vegetable cultivation. This is a great mistake. A young man taking his first head place may be lucky to have a good vegetable grower under him, but then he could not claim to be an all-round man.—D. R.

An Enjoyable Day's Outing.

It is not the luck of every young gardener who reads the very interesting letters in "The Domain" to get such a splendid fellow for head or chief as I have. I am not a native of Berkshire, my home being in Norfolk, and this is my first place so far away. Naturally, I thought I would ask permission to have a few hours off to see what kind of a neighbourhood I was living in. As we were busy, he said he would give me a day's holiday if I would work in the evenings to make it up, so that we should not be behind with the work, which I gladly agreed to. My object was to visit Kew Gardens, which are about twenty miles cycle ride from Ascot, where I am employed. My route lies through Staines and Bedfont, the latter with its pretty little church and splendidly clipped Yew trees in front of the porch. I reached my destination about one o'clock, and went through the glass structures first, as time was precious, and to me it was more important, as my occupation lies in that direction. I thought the palms were magnificent. What a grand view one can obtain from the gallery. There I could sit and imagine that I was in some foreign land. In one of the houses I noticed a splendid group of *Amaryllises*. The Carnations also were admirable; if they were in my house, how quickly the mistress would want them in the drawing-room! If I were to relate half the beautiful things I saw it would more than fill a book. There were many subjects in the Erica house which were lovely and sweetly scented. Outdoors there was a bed of *Magnolia stellata*, which was very showy. But time was all too quickly passing away, and I had to start on my return journey, well satisfied

with only a glance at Kew Gardens. How well a visit would repay and enlighten many a young reader of the good old *Journal*. When I reached Virginia Water, I went in the park and sat on some ruins close to the lake. The sun was setting behind the tall Larch trees just breaking into leaf. I could hear the noisy waterfalls in the distance, and in a low bush close at hand the nightingale was sweetly singing its evening song. It was lonely here, but everything around was peaceful and lovely.—J. SEXTON, Rose Mount.

Self Education.

A few words on this subject, I think, will not be amiss to my fellow bothyties. Most of us leave home and start on our career early in life, anxious to be earning our own livelihood, and to be more free and independent, and not unnaturally parents also like the youngsters to be gaining practical knowledge as well. Under these circumstances we leave home with the ordinary rudiments of knowledge, the foundation upon which to build our future success. To be efficient and to fight the keen competition of everyday life one must exercise one's utmost capabilities to acquire knowledge to compete with these conditions. That "knowledge is power" is proved over and over again in our daily life. Young men stand but poor chance if they are not acquainted with the subjects cognate to their calling or profession. Let each young man of the gardening fraternity put his shoulder to the wheel and push onwards by persistent and systematic study of such subjects as are allied to, and will prove useful in, his calling. Consistency of purpose and perseverance will surely bring their reward.—S. G., Co. Galway.

Social Status.

It is a matter extremely regretted by the leading horticulturists, and all high-minded gardeners, that our social status does not receive its just recognition by the public at large. In this article I would urge upon all deep-thinking readers of the "*Domain*" the necessity for serious reflection upon this matter, and to strive for its improvement. At whose door shall the blame be laid, the employer's or the gardener's?

There is no doubt that the average employer of garden labour does not appreciate to nearly the full extent the capable services rendered by his gardeners, as evidenced by the skilled labour expected and the paltry remuneration often offered. It should be apparent to the most unthinking employer that the choice hothouse fruits which he enjoys, the tastefully decorated rooms and conservatory with its mass of flower, the beautifully kept lawns and borders of the pleasure ground, not to mention other things, are produced by men whose intelligence and capabilities are of no mean standard. Yet it is evidently not so, and if gardeners could only command a greater universal recognition of their services, it would tend toward the lessening of our social degradation, and would benefit us financially also. Let us not, however, cast aspersions at our employers until we are certain that the beam is out of our own eye.

I am sorry to say that there are men in our bothies that are no credit to the gardening community, and who are a source of nuisance to those right-minded young fellows who endeavour to perfect themselves in everything that will enable them to become good gardeners and upright citizens. There is the young man whose only thought is to get the day over with the least possible amount of energy, being alternately engaged in discussing things that have not the slightest bearing upon horticulture, or upon anything that is good, and smoking the notorious cigarette in secluded places, a thing which the gardener, busy man, never sees. A night of dissipation frequently follows a day of slothfulness, the young man in question rarely being seen after work is over, and only returning to the bothy when the public house refuses admittance, sometimes, I am sorry to say, the worse for drink, and needing many calls to awaken him for the morning bell. Will such transgressions raise our social status? I am afraid not. These cases are generally unknown to the gardener, who, in the goodness of his heart, does not enquire too closely into the mysteries of the bothy; but what disgrace if it gets to his knowledge, or worse still, to the ears of the owner of the garden, in which case the inevitable "carpeting" may be followed by dismissal. I would earnestly entreat these men, the drones of our hive, to leave us; we cannot tolerate the idler, he is a bar to our progress.

A gardener is not a gardener in the same way that a bricklayer is a bricklayer. What keen delight does the true horticulturist take in all that pertains to his profession; what pleasure evolved in tending our plants as they grow; how ready we are to learn from Nature, as she shows us in her inimitable way the wonders of her methods. This is in itself the greatest of arguments in favour of social advancement; for is not he who has communed with Nature, and learnt her secrets, worthy of the highest respect? To all my young true gardening friends I would say, persevere in all that is good, and our efforts may one day be crowned with honour.—ADVANCE.



Hardy Fruit Garden.

INSECTS.—We seem to have rather more than the usual allowance of insect troubles to contend with this season. Aphides on Plum trees are more than usually prevalent, and steps should be taken to destroy these troublesome pests. Winter moth larvae are quite sufficiently in evidence in spite of grease-banding most carefully carried out. Nearly all growers appear to have had rather exceptional visitations from the larvae of the sawfly. This, in addition to the loss of the berries, does not this year make Gooseberry growing very attractive or profitable. Psylla upon Apples seems to have practically vanished upon our own trees, but we have seen many thousands upon those of a neighbour. Many proprietary mixtures are offered to combat these various troubles, and while some of them are undoubtedly of great service to the grower, and good value for money laid out, some, at least, should be avoided. We find Paris Green infused at the proper strength with lime, safe, effectual, and economical. For aphides alone, softsoap and quassia at the usual strength will be found effectual. Gooseberries attacked by the larvae of the sawfly must have prompt treatment or great damage may quickly be done to the bushes. Hellebore powder dusted on the branches when these are damp is perhaps the most effectual and direct remedy, though Paris Green is just as efficient and less expensive.

CHERRIES.—We cannot discover that these were seriously damaged during the wintry weather experienced a week or two back. A few of the buds were injured, but generally there appears a prospect of a fair crop. See that black aphid does not obtain a hold of the growths of trees upon warm walls. This is a most objectionable pest, and one most difficult of destruction once it becomes thoroughly established on the trees.

PEACHES AND NECTARINES.—The work of disbudding growths must be carefully carried out, doing a portion of each tree at a time, and not checking them by the sudden removal of too large a number of the young shoots. The growths allowed to remain should chiefly consist of a basal shoot to provide a young shoot for next year's bearing, a terminal shoot to ensure proper circulation, and if necessary one or two for filling up space. Dress the shoots with tobacco powder or other insecticide at once should aphid appear. All badly curled or blistered leaves should be removed and at once burnt. All protecting material ought to be removed from the trees without delay.—J. W., Evesham.

Fruit Culture Under Glass.

MELONS.—The earliest fruits will now be ripening, and to get the best flavour more attention should be paid to the humidity of the house, the use of the syringe being discontinued, and less water at the root; but as regards the latter, do not stop the supply till the fruits are quite finished. To get perfect fruits the foliage should be perfect to the last, and root action vigorous. Many fruits are spoiled by withholding water at a critical moment, and drying up the foliage. At the same time avoid the other extreme. The old system of getting a second crop from the same plants is not much adopted, neither do I advise it. With good culture, having strong clean plants ready to plant out, there is no gain, and it is an easy matter to take three crops in the same house by planting as advised. As soon as the crop is cleared, the old soil may be levelled down, a little fresh added, and the seedlings put in at once. Sow again for successions.

SUCCESSION HOUSES.—Plants showing fruits will daily need stopping of the laterals, and pollinating the female flowers. Plants that are more advanced should get liberal supplies of fertiliser. This may be given in a liquid state, also as a top-dressing as soon as sufficient fruits have been secured, and this should be continued till they are full grown. The temperature may now be 70deg at night and 5deg to 10deg higher by day.

MELONS IN FRAMES.—At this period of the year excellent fruits can be grown in frames standing on a good bed of prepared fermenting stable manure, the whole made firm, so that a steady bottom heat of 70deg to 80deg may be maintained, and the same top heat will now be readily secured. As the warmth declines, fresh linings can be given, and it is well to cover the glass at night with mats after planting. In filling up the frames, place half a barrowload of soil in the centre of each light. When the bottom heat in the bed has subsided to, say, 85deg, the soil should be about 12in from the glass.

Plant two seedlings, and make the roots quite firm. Stop them early to induce two growths to each plant, and these should then be trained to fill the upper and lower portion of the frame. Partial shade will be necessary at the start, and ventilate early in the day to avoid condensation of moisture on the plants. Plants in frames require less water at the roots than in other positions, as the manure retains the moisture. Keep the collar of the plants dry, and regularly stop all side growths, so that the foliage is not crowded. Secure the first flowers, and when set, remove others.

STRAWBERRIES.—The last lot of forced plants will now be ripening up their fruits, and I find that much better results are obtained from cold frames than when grown on dry shelves. On the latter it is at this season almost impossible to keep the plants free of red spider, but grown cooler, the fruits are equal to those in the open ground. The plants after being forced will give a good autumn return if planted out in rich soil and well attended to.

POT RUNNERS.—It may be thought somewhat early to advise on these, but my note now more concerns the new growths. These, to be strong, are best when obtained from young plants not fruited. It is well to grow a few rows for this work, and the plants should now be relieved of their flower spikes. This greatly strengthens the runners.—G. W. Brentford.

The Plant Houses.

PERPETUAL FLOWERING (AMERICAN) CARNATIONS.—Continue to pot on these plants as they require it, never allowing them to become root-bound. Growers who intend planting out their young stock for the summer, to be lifted and potted up in autumn, will be perfectly safe in putting out the plants at the present time. Any surplus plants which have finished flowering for the time being in the greenhouse, but which are well clothed with vigorous flowering shoots, should be planted out in a bed or several groups in the mixed border. They will continue to grow and flower till late autumn. Give the flowering plants in the houses abundance of air, and shade them during the heat of the day to prevent the blooms bleaching. Fumigate both old and young stock should aphids make its appearance.

CINERARIAS.—Sow the seeds of these forthwith. Use pots or pans well drained and filled with light rich soil. Scatter the seeds thinly over the surface, and cover thinly with fine soil. They will germinate the best in a cool greenhouse or frame. The stellata, or star types, have largely taken the place of the older large-flowered Cinerarias. Both have their valuable qualities, the former are more light and graceful in habit, while the large-flowered varieties produce a gorgeous display of colour, and are compact in habit.

RICHARDIA (CALLA) AFRICANA.—As these cease to throw up flowers the plants should be stood in a fairly sheltered position, the supply of water being gradually reduced to give them a rest. After a short period of rest, one of two methods may be pursued, either to shake out and repot the plants, or plant them in trenches in the open border, lifting and potting up again in autumn. Whether in pots or planted out, some well-decayed cow manure, or other suitable material should be freely mixed with the soil. A plentiful supply of water will be necessary when growth commences.

FORCED TREES AND SHRUBS.—These having by this time been hardened off sufficiently for planting out, or plunging, the work should be put in hand at the first favourable opportunity. Some subjects will bear gentle forcing year after year, while others must be planted out for a year or two to recuperate. Lilacs are one of the best examples of those which take a year or two to recover. Deutzias, on the other hand, may be forced for several years in succession.

THE FERNERY.—Most of the plants are now growing freely. As the young fronds develop they will require more space, and also turning round if drawing too much in one direction. Syringe the stems of tree ferns at intervals with liquid manure. Maintain plenty of moisture in the atmosphere of the house. Shading is important, a permanent shading during the summer is advisable on the south side of the house. "Summer Cloud," or whitewash, for instance, with blinds to roll down during the brightest part of the day.

MISCELLANEOUS NOTES.—Insert a few cuttings of Hydrangeas, selecting for the purpose shoots which will not flower this year. Many Chrysanthemums are ready for the final potting. Pot Tuberoses for autumn flowering, placing them in a frame. Now that most of the bedding stuff has been removed from the pits and frames, there will be plenty of space available for potting indoor plants. In the rush of work in preparing the plants for bedding this is apt to get behind. All sorts of plants require potting on, and cuttings of others inserted.—A. O., Kew, Surrey.



All Correspondence relating to editorial matters should be directed to "THE EDITOR," 12, MITRE COURT CHAMBERS, FLEET STREET, LONDON, E.C. Persons sending manuscript or photographs, when not specially requested by the editor, and making no demand for remuneration, are presumed to solicit publication without payment. In order that no misunderstanding may arise, and in order to secure the return of their contributions, contributors should state the fact that they expect remuneration, and in all cases, even when contributing voluntarily, correspondents should enclose a stamped envelope if they expect their enclosure to be returned.

CATS IN SMALL GARDENS (A. B.).—Perhaps the best means of warding off cats from seed beds is to place bushy or nicely branched Pea sticks thereon. Little twigs stuck into the ground also prove effectual. Otherwise, catch the cats and coop them up!

GRAPES RUSTED (J. L.).—As only one or two bunches are affected we cannot account for the injury. Rusting is caused by the bunches being rubbed, by a cold rush of air, by sudden and excessive evaporation, and by the fumes of strong fermenting materials placed in the vinery.

INSECTS ON FERNS (A. B. C.).—The weevil upon those sent is an *Otiorhynchus*, and your only mode of eradicating it is by either shaking it from the plant or hand-picking. If it is confined to one plant we should repot it, removing all the loose soil in which the weevils hide, and search assiduously for them amongst the stems of the ferns. Perhaps a dressing of nicotine soap would have some effect in banishing the pest.

TOBACCO PAPER (Nicotine).—It is made by soaking coarse brown paper in what is known as tobaccoists' liquor, being a liquor expressed by them, and full of ammonia and the acrid oil of the tobacco plant; or it may be made by saturating the paper in a strong decoction of tobacco, with a table spoonful of salt-petre added to each pint of the liquor to promote steady and regular combustion.

BOOK DEALING WITH THE PRODUCTION OF FRUIT, FLOWERS, &c., UNDER GLASS (W. S.).—We do not know of a book treating of these subjects from a commercial point of view as practised in the Channel Islands and the Eastern Counties, especially one giving particulars of cost of erection of structures, working expenses, size of crops, methods of disposal, &c. Messrs. W. H. and L. Collingridge, 148 and 149, Aldersgate Street, London, E.C., have some 1s. books on the subject, also there is one by Mr. Burbidge, but it is out of print, though possibly procurable second hand. Perhaps some of our correspondents may be able to supply the desired information.

PEACH SHOOTS DISFIGURED (J. H.).—The young growths are eaten by one or other of the *Otiorhynchus* weevils, the most common being those of Black Vine Weevil (*O. sulcatus*) and the Clay-coloured Weevil (*O. picipes*). In the beetle state they feed on leaves and shoots of various plants, riddling them in holes and scallops, and in the larval stage they are injurious by feeding on the roots. The habit of the weevils of sheltering away from the light during the day is one great help towards keeping them in check. They feed by night, and by day hide away, either buried in earth by the walls against which their food-trees are trained, and in other dark and safe places of retreat. The habit of feeding at night has led to sticky banding the stems of the trees, but this would be of little use in the case of trees trained to trellises. The plan, therefore, is to place some white sheets under the trees in the daytime, and at night, after dark, enter the house cautiously with a bull's-eye lantern, with the light turned off, and then sharply shaking the trees or trellis. The weevils drop onto the sheets, and by turning on the light they are easily seen and may be captured, as they sham death for a short time, placing in a vessel containing a little gas tar or paraffin oil. This repeated for a few nights will clear the house of the pests.

NAMES OF PLANTS.—Correspondents whose queries are unanswered in the present issue are respectfully requested to consult the following number. (H. J.).—*Cypripedium villosum*; sorry to have delayed this. (Ponica, Essex).—1, *Prunus Mahaleb*, the Perfumed Cherry, used as a stock for Cherries; 2, male form of *Garrya elliptica*; 3, *Pyrus baccata*, the Siberian Crab; 4, probably *Pyrus Sorbus* (send when in flower). (Reg., N. Wales).—5, *Anchusa Barlieri*; others not identified.

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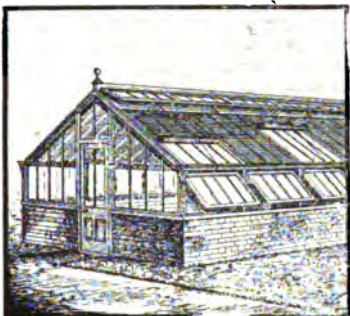
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The Aspect of Things in General.

Can we sum it up in three words? Green, growing, and moist. After yesterday and to-day's sunshine we fancy we may add "warm," too. There never is greater beauty than that of the fresh green, especially when it is so abundant and so rich. To look at the grass it is hard to believe that the pastures can ever be brown and bare. As old Wordsworth says—

The cattle are grazing,
Their heads never raising,
And forty are feeding like one.

And they seem to make no impression on the supply before them. It is early enough for buttercups yet, and this is a late season; but many of the fields are thickly jewelled with cow-slips, and the waterways enriched with marigolds.

There are some places where we would wish to see a greater flush of green, and that is where the spring corn lingers. It is no one's fault the land was not ready to work, much less ready to sow, and perforce the crops are backward; but given a week or ten days of this forcing weather we shall tell a different tale. We thought everyone recognised the need of the wheat crop in May—a tonic to prevent that unpleasant bilious yellow, the result of cold times and much dampness. Just a little nitrate will pay, the action so rapid and so sure, and a heavy crop must have help of some sort. The wheat crop resembles human nature very much in the spring: there is often lassitude and debility, and we can doctor wheat with far more certainty than ourselves.

Already we begin to think of our hay crops. What will the season bring us? That depends much on ourselves. If we have taken all the heart out of the pasture last year—greedily taking and giving nothing in return—it will only be by sheer good luck that we get a big crop. We can "give" in so many ways. First there is the manures proper. Well, it is not absolutely necessary to go to great expense over that item every year. We can "take" and at the same time "give," and give through the medium of the grazing stock which is placed in the field after the crop of hay is removed. A wise man does not leave his animals entirely dependent on what they can find; he contributes handsomely to the bill of fare by allowances of cake or corn, and that allowance pays in two ways: by the quicker development of the stock, and by the enriched manure. Dressings in the winter of basic slag, with a little nitrate or sulphate of ammonia in the spring will work wonders. But dressings are of little avail unless the field gate is closed in good time and kept closed. Well manured land will stand a great deal of drought; indeed, perhaps a dry season on the whole suits it best. There is just a possibility of having too much grass of a washy character rather than less and very good and sweet.

With the cows flushed by fresh juicy food we find the milk pails are ready to overflow, and down goes the price of butter with a run. It is more tiresome to manipulate now than earlier in the season. It is soft and gives the dairymaid a tedious hour, and yet she gets less for her pains—such is life. Probably there are more complaints about trials in dairy work during the spring season than at any other time. This is in a great measure due to the change of food—the grass supplemented by hay and roots. Also, too, the temperature is of a very variable character, and all this affects the cream. It is annoying to churn and to find the process of butter-making does not progress. The cream will be thick and clings round the churn side, but that is all; generally the addition of some water at the temperature of 60deg will alter matters. Frothy cream has to be treated in a different manner. It must be scalded, cooled, and refined with "starter" before there is any chance of successful churning. All this is a great nuisance, and means loss of time and temper. Who can wonder?

There is another difficulty that does not exist where a separator is used. The old way of skimming is often done very carelessly. Buy two jugs of cream, one where a separator is used, and one where hand skimming is the mode. Put them both away for a day, perhaps two, and there is then no need to ask further questions. The first cream will be one solid mass, the second will be solid at the top, with a thick layer of sour milk. It does not require a wizard to decide which sample would make the better butter. Careful housewives will allow the milk to stand too long, in the vain hope of getting an ounce or more of butter. They get the butter, but it is not of first-rate quality, and the milk is practically useless, too far gone in sourness.

If people would only be persuaded to churn a little oftener, and use a separator, many present-day difficulties in successful butter-making would vanish.

We have been told times and times again by most practical people that had they known the value of separators they would have bought them years ago. There is the extra butter (and this is not inconsiderable), the extra quality, and the fresh milk, of so much more value as feed for young stock than the semi-putrid fluid of old days could possibly be. There is the extra cleanliness, too, and although some may declare the separator takes much keeping in order, it does not make the same amount of work that all the milk panchions used to. Of course, as a piece of machinery it requires exact handling, but no one worthy of the name of dairymaid should be other than careful and scrupulously clean. During the hot weather the make-up of butter presents a problem, and it often is necessary to leave the butter all night on a cool cellar floor before it can be effectually dealt with. The modern butter-worker is a great help, and a well of ice-cold water is a still greater.

How the advocates of charlock spraying will manage their business this season rather puzzles us. It is all very well to spray, say, at a cost of 6s. 6d. per acre, but how about the result when the heavy rain comes washing down upon the newly-treated plant? There is little or no chance that the copper sulphate will have opportunity to work. That spraying does improve the crop (when effective) is a certainty. There is more air and ground space for the legitimate crop, and the young grass seeds have more of a chance; but we fancy, with many farmers, that 6s. 6d. per acre will act as a deterrent, as well as the fact that this year certainly there is no time to spare. How work is going to get done is a problem that will take a great deal of solution. There is not one single branch of work which is not backward, and very backward.

How one industry touches another! Here we have wool down again, and just at the time when we could do with a good cheque from the wool-stapler. This wool trade seems nowadays a most precarious business; we had hoped we had seen the last of really cheap wool, and the worst of it is that with wool down mutton drops too. It is all very well to rejoice in the fact of dearer wheat, but we should like to know really how much remains in the hands of the farmer; precious little, we fear.

Already the season of agricultural shows is upon us, and we shall be taking a day or two "off," just to have a look round. Well, a good show is valuable as a practical educator, but if there is one thing above another we should like to do, it would be to accompany the British dairy farmers on their annual tour of inspection, and recreation, and pleasure. We see they are off this year into the Derbyshire district, and will, we believe, be entertained by His Grace of Devonshire. To see the general run of farming, especially noting the dairy work, makes this excursion one of the pleasantest. We should always prefer our own to a foreign land, for we are somewhat doubtful of our proficiency in "tongues" other than our own.

Work on the Home Farm.

The fine weather we now enjoy is all in favour of farm progress, though perhaps on very heavy land the change may have been a little too sudden. Wheat is improving all round, and there is plenty of work amongst it, for it is a great thistle year. To keep down corn thistles we must not skip the ploughing, which we fear too many do. Farmers who use double furrow ploughs are no enemies to the thistle, and now we use string binders the men do not complain.

There are complaints of barley grubbing both after seeds and turnips, but so far as we can see there is plenty of plant, and the land seems to be solid enough. Oats are looking very well where they were sown early. Mangolds have come very nicely, and will be an excellent plant. There will be a bumping crop of clover as well as of hay, and there is little prospect of the present heavy stocks being cleared away. The demand in the autumn was fair, but now anything but the best is quite unsaleable. For a month now we shall be busy sowing turnips, the swedes being put in at once.

Potatoes are coming through nicely, so we want no more frosts. In a week or so they will be ready to hoe, so what with thistling the corn and hoeing the potatoes and turnip drilling we shall have our hands full.

We are getting the wool off the ewes, and as sheep lice are rather plentiful we shall have to dip both ewes and lambs ere long. The lambs have done very well this spring, and we saw a big lot the other day as strong a lot of cross-breeds as we can remember.

In connection with shearing, we have found a man who has clipped sixty sheep in twelve hours and wound his own wool. That will take some beating with one pair of shears. This wool winding up is rather an important operation, and should not be done carelessly, as a great difference can be made in the appearance of the fleeces.

It is nice weather for getting foals out to grass, there being no danger of sudden squalls to wet their backs before they can be brought up. After they have been out a few days a shower will not hurt them.

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that it is easy to see that the heavy crops they are carrying cannot possibly swell to normal size or colour well unless methods are at once taken to combat insect pests. Apples are also showing traces of aphid attack, and in many cases have swarms of Apple-suckers feeding on their juices. Gooseberries and Currants, too, are suffering badly from the attacks of aphids.

There are numbers of excellent insecticides on the market which may be relied upon to clear out the above pests if used according to the directions issued with them. The following are some of the best among them:—Woburn Iron Emulsion, V, Fluid, and McDougall's Summer Wash (strengthened). Many cultivators, however, prefer to make their own insecticides, and by doing this delay is often avoided, as when the time for spraying arrives there is often so great a rush upon well advertised insecticides that it is difficult to get them exactly when required. In the meantime the pests are doing irreparable harm. I therefore give the recipe for making an insecticide which I am constantly using and find thoroughly satisfactory:—6lb softsoap, 8lb of extract of quassia chips, 100 gallons of water. The soap should be boiled in a small quantity of water, then mixed with the 100 gallons, the other ingredient being then added, and the whole thoroughly stirred before use. Quassia chips may be used instead of the extract. In preparing the chips, boil 10lb in ten gallons of water for half an hour; strain through a fine sieve, and add ninety gallons of the soapy mixture. This may be kept in bottles or air-tight jars so as to be ready for use at any time. It answers equally well for Roses and Peach trees; and, indeed, for any plants liable to injury by aphides.

Where caterpillars of the winter moth, lackey moth, or grubs of the codlin moth are troublesome, a poisonous spray fluid should be used. Arsenate of lead and Paris green are both effectual, though the former is generally preferred, as when Paris green is used it is apt to damage the foliage. To prepare arsenate of lead dissolve 1oz of arsenate of soda in warm water, and add sixteen gallons of soft water. Then dissolve 3oz of acetate of lead in water, and pour this into the sixteen gallons of liquid. Add to this 2lb of treacle. Paris green may be prepared in the following way:—Add ½lb of Paris green to fifty gallons of water, and thoroughly mix ½lb of lime with the same. Keep the mixture well stirred during use. In the case of both mixtures, spray on the trees in a fine mist.

Red spider has already done an enormous amount of harm to Gooseberry bushes this season. Where bushes have been liberally treated this pest is not generally feared, but in far too many instances bushes get little or no feeding, and these will certainly fall a prey to the pest. If matters are allowed to take their course, bushes are completely ruined in a couple of years. The wise course to follow, therefore, is to first spray to get rid of the spider, and then feed the enfeebled bushes into vigour again. I recently gave the following recipe to a grower whose bushes have suffered terribly from red spider. It has proved so effectual that I give it for the benefit of others who may be similarly circumstanced. Quantities: 6lb softsoap, four gallons of paraffin. The soap should be first dissolved in boiling water and be poured into a tub containing the paraffin. The whole ought then to be thoroughly churned up with a force pump or syringe. The mixture is then diluted to the proper strength. Soft water should, if possible, be used. It can be made soft by adding 5lb of soda. Where mildew or fungus of any description is also giving trouble, 2½lb of sulphide of potassium should be added to the above emulsion. In the case referred to, however, the emulsion effectively destroyed the red spider without the aid of the liver of sulphur.

Experienced gardeners and fruit growers know full well that we have now reached the turning point in regard to the ultimate result of present prospects. If insect pests are kept in check, bountiful crops of fine fruits will follow. On the other hand, if such matters are neglected, the bright promise of the present will end in that disappointment which always comes to the grower of miserable-looking, under-sized, badly coloured samples of fruit.—H. D.

By a report of the meeting of the Guild of Kew Gardeners, which was held in the Holborn Restaurant, London, last week, we observe that Mr. W. Pettigrew, the chairman, suggested that some sort of horticultural degree should be established as a distinction for gardeners of a certain rank. We regret we did not hear Mr. Pettigrew's proposals or suggestions personally. The highest honour that at present can be conferred upon the professional horticulturist is the Royal Horticultural Society's gold Victoria Medal of Honour. The recipients are limited to sixty-three, being the number of years of the reign of the late Queen Victoria. Mr. Pettigrew is an honoured member of that large and constantly increasing band of gardeners, the superintendents of public parks, open spaces, and ornamental grounds. Whether a special class medal or distinctive order should be, or could be, instituted for them, we greatly doubt; for the individual work of the superintendents usually receives due recognition at the hands

of their employers, the respective town or city corporations. The only satisfactory method, as it seems to us, is to try to raise the status of gardeners generally by the means that are being practised by the British Gardeners' Association, whose annual report we publish in the present issue. The better class, or upper class, of gardeners do not require any additional mark of distinction. Both locally and as members of the great general public, they receive the recognition that is due to their sterling merit, and character, and worth, as citizens. There has also been some talk of State recognition for horticulture; but while so many other special industries are placed under the care of one Board, we think it hardly likely that a special State Board of Horticulture will be established in Great Britain in the near future. But a special bureau or sub-section of the Board of Agriculture might reasonably be expected. All the same, the time is ripe enough for a conjoined horticultural and pomological department.

Two issues back we reported that the tents were up. Much water has flowed under the bridges since then. Numerous tides have ebbed and flowed. The tents are down again! The Temple Gardens were as peaceful as ever on the Monday

The Temple Show. after the show; and the grass was speedily freshened by the rain. These "gardens," by the way, have very few flowers; only a few beds at odd corners. The glory of the area is its beautiful sward.

So the twenty-first of the Temple Flower Shows has come and gone. It is often said, and we believe truly said, that nowhere in the world can such a show be seen as this annual fête of the Royal Horticultural Society. Much is written in praise of the Ghent quinquennials, but after all these shows are mere trade demonstrations, and the variety of subjects, or rather of the features there, cannot compare with our Temple Show.

Each year the Temple exhibition improves in one or more directions. There is room for improvement in places yet, however. Firstly, a re-distribution of places would be a welcome change, though it would slightly inconvenience some of the exhibitors. Alterations were instituted this year with pleasing results, and though the allocation of a new site to any one exhibitor need not necessarily compel him to alter the style or mode of his arrangement, it at least presents the possibilities of a change. Doubtless the public recognises the fact that exhibitors have to circumscribe their artistic endeavours with an eye to business expediency. If their success in business depended purely and solely upon the beauty and effectiveness of their groups, one might be saved any need of referring to the importance of improvement in this direction. But after all are we not hypercritical? He or she who visits the Temple Show for the first time sees only that which compels admiration; and really, there is so much of novelty every year, in almost every group, that the others, who, however, form the great bulk of the annual visitors, can find abundance to satisfy their inspection. There are two main classes of visitors. One class looks at the outward aspects of the show in its diverse parts. The other class, while not overlooking "effect," peers into the component parts of each and every display, searching for the rarities and the varietal differences. How to show the most and the best to the thousands who come at the call of Flora is just the problem. But if a horticultural reporter makes bold to criticise a very crowded group, he runs the risk of being misunderstood. No responsible and conscientious journalist would show malignity, nor favour. If he is experienced, his criticisms, favourable or unfavourable, should be of value.

The Temple Show, and large exhibitions of a similar character, are highly educational. They teach us what is good and new; they stimulate the real garden lover; and they rejoice the heart of the professional horticulturist, who sees his labours so strikingly appreciated by all ranks, from Royalty downwards to the little gamins who clamour for a stray blossom when the show is over.

But the uninitiated also certainly carry back some wrong ideas and not a few false hopes. Here is perfection in flowers and plants; why can they not go home, and when the time comes, have perfection too? Doubtless fond hopes are often shattered, and the sequel to many fair beginnings, it is feared, is told in anguish, and occasions, perhaps, not a little unpleasantness to boot. One very happy circumstance at such shows as this is the joint visitation by employers and their gardeners, which is not at all uncommon. It is good for both, especially if the employer is there in a companionable sense, and not in the character of an overpowering and dictatorial master or mistress. We have, it is true, felt shame and anger at the unconcealed derogatory innuendos thrown out by certain employers to their humble gardener at their side, once or twice during our experiences. The strictures or peevish suggestions may or may not have been fully deserved; but there is a right and a wrong way of administering them. But the competent gardener should comport himself so as to secure respect; and he who is not, or feels he is not, well qualified in his calling, had better resolve to spare no pains in improving himself.



A specimen Dendrobium.

No matter what the plant may be, so long as it is a noble specimen of its kind, with all its beauty of detail fully developed, we cannot but admire it. And when that specimen happens to be a flowering plant, and such a flowering plant as the one here figured, one's admiration is sensibly quickened. This excellently flowered *Dendrobium nobile* was grown under the care of Mr. William Moreby while he was at Moorhead, Shipley, Yorks. It measured 5ft by 3ft, and bore 1,134 splendid flowers. The receptacle employed for the plant was a 16in basket.

The Genus Cattleya.

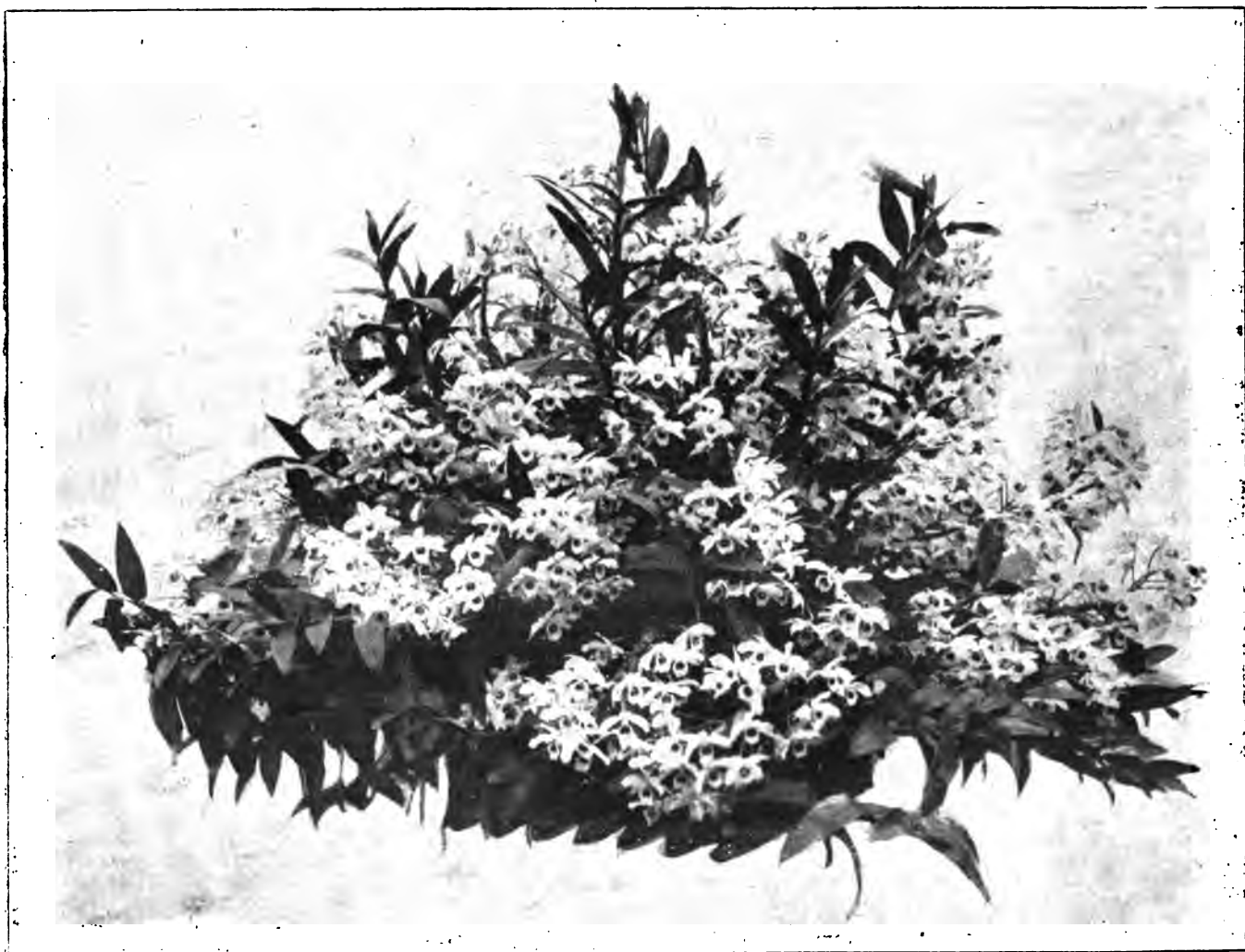
"Cattleyas are the stock flowers for the horticultural shows," wrote the late Dr. Smee in "My Garden," a phrase even more true now than in 1872, when that famous and rare book was published. They are grown in quantity for cut flowers by the private individual, and in commercial establishments whole ranges of houses are devoted to their cultivation.

Where a succession of flower is needed the genus under notice is unique, and with careful selection one or more of the species may be had in bloom the whole year round. During the winter months we have *C.'s* *Trianae*, *labiata*, *Percivaliana*; then follow *C.'s* *Schrödera*, *Skinneri*, *Mendeli*, and *Lawrenciana*; with *Mossiae*, *Rex*, and *gigas*, while for the autumn there are *C.'s* *Dowiana*, *aurea*, *Bowringiana*, and *Gaskelliana* to produce a fine display.

Cattleyas vary somewhat in size and habit, but with the exception of the sweet-scented *C. citrina* all flower from the apex of the pseudo-bulb; the spike being usually preceded by what is commonly called the sheath, although occasionally this is absent. The flowers in most instances are large and showy, and remain in full beauty for a fortnight or three weeks. They are found at considerable elevations in various parts of Brazil, South America, and Mexico.

The most popular section of Cattleyas is known as the *labiata* group; *C. labiata* being taken as the type, and those named below resemble it in general habit and shape of the flower to such a degree that at one time they were classified as varieties of *C. labiata*; but now they are raised to specific rank by our greatest specialist on Orchidaceae, Mr. R. A. Rolfe.

It is not necessary to describe these at length, but we will content ourselves by referring to any peculiarity, cultural or otherwise, and pass on. *C. Trianae* is a grand plant for autumn and winter, but it is not recommended near large manufacturing towns, where, unfortunately, it fails to properly develop.



A Specimen Plant of *Dendrobium nobile*

In the present articles species only will be dealt with, for in spite of the progress made by the hybridist in cross-breeding, the species still hold their own, and good forms of, say, *C. Mossiae*, which have substance and shape combined, continue to fetch high prices whenever offered by public auction. It must, however, be clearly understood that nothing disparagingly is intended concerning hybrids, for they play an important part in horticulture to-day.

Two varieties, viz., *alba* and *delicata*, are often seen, and deserve a place in every collection where *Trianae* thrives.

C. Schrödera, a sweetly fragrant orchid, does not show much variation in colour, and few really bad forms are imported. Although not sought after so much by connoisseurs, it is nevertheless one of the best for general purposes.

C. Mossiae, of which there are some remarkably fine varieties, is one of the largest-flowered orchids in cultivation.

Among the most prized are Wagneri, Reinechiana, and alba, while the ordinary forms are always admired.

C. Warcewiczii (syn. gigas) has a reputation of being a shy bloomer, but if given a position near the roof glass, where it can receive both light and air, better results will be obtained. It ought not to be overdone with water in the earlier stages of growth, because root action does not begin till the pseudobulb is near completion. Some varieties of this grand species are exceptionally good, Sanderiana being an example; but the kind usually met with is very attractive; they are all characterised by two large yellow spots in the throat of the crimson purple lip.

C. Dowiana and C. x aurea are two of the most exquisite and beautiful Cattleyas known. The sepals and petals are a primrose yellow, while the lip is beyond description; but it is generally spoken of as being crimson-purple, lined with gold.

The two plants just mentioned enjoy somewhat similar treatment as advised for gigas; and it also applies to Hardyana, a natural hybrid between gigas and aurea. C's Dowiana and aurea, with their progeny, should be grown at the warmest end of the Cattleya house throughout the year. Other Cattleyas that may be classed in the labiata group embrace Warneri, Percivaliana, Mendeli, Gaskelliana, the choice Rex, Lueddemanniana, and Eldorado.—T. ANSTISS.

(To be continued.)

Entomological Notes.

Some Big Moths of June.

It is still a question open to debate what the creatures are which the folk in some country villages call "moth owlets." Very likely the name is not always given to the same species, of twilight or evening flight, but it is generally supposed this does not belong to any of the nocturnal birds. Some are decidedly of opinion that moth-owlets are bats; there is a resemblance, no doubt, between a large moth and a small bat, though neither of the two are particularly like an owl. As an entomologist, I have an idea that the name, sometimes at least, is applied to various large moths, mostly stout-bodied, with grey or brown wings, that come upon us suddenly in gardens and elsewhere. Owls are so feathered that they travel almost noiselessly at dusk, but some of the moths make a swishing sound as they fly. They differ, too, from owls in not being intent upon prey; if they seek food, it is only the nectar of flowers.

Flowers are, in fact, the chief attraction in our gardens to many of the big June moths, but this year the lateness of the season may cause delay in their appearance. Some of these moths have lived while caterpillars in or near the gardens they frequent, others are visitors from a distance, perhaps have travelled miles. (Our native giants, the death's-head moth and the unicorn hawk, are believed to have a strength of wing enabling them to cross the Channel; these, however, are autumnal insects.) Probably most hawk moths have a keen sense of smell, as well as sharp sight; their eyes often shine like tiny stars. This seems to be due neither to electricity nor phosphorescence, but as with the eyes of some animals, it is a radiation of light which has been absorbed during the day. Light is a fascination to some moths, and gas or electric lights along roads and in houses bring them into gardens which happen to be near. Familiar to most is the common privet hawk moth (*Sphinx ligustri*), rather scarce last year, however, for some reason. It is generally on the wing when its food-plant, the Privet, is in full bloom. This moth has the underwings pink and with black bands, the sides of the body have also a beautiful pattern of pink and black. The handsome caterpillar is most observable in August and September; I have taken it sometimes off Lilac and Apple. A fat morsel one would be to a hungry bird when getting nearly full grown, yet we may often notice them extended on the Privet twigs quite at ease in the early morning.

Then we have three hawk moths nearly allied to each other, which career about gardens during the early summer, or they may be noticed resting upon walls and palings in the daytime. They can take long flights, occasionally they do, but seem rather lazily inclined. In a forward season we may come upon a Poplar hawk (*Smerinthus populi*) towards the end of May, it is fairly abundant throughout England. Its wings are grey and brown, the hind pair just tinged with red. The seven striped, horned caterpillar feeds on various species of Poplar in gardens and parks, also on Aspen or Laurusinus. About the same size, but more lovely in tints is the eyed hawk (*S. ocellatus*), specially notable for the rosy hind wings having in the centre an eye-like spot of blue, circled by black. The caterpillar has been placed in the list of garden pests, but it is seldom abundant enough to do serious injury to the Apple, on which it now and then occurs; we often find it on Willows or the Black Poplar. It is rough and striped, resembling the preceding species. But this has a blue horn, and that of the Poplar hawk caterpillar is yellow. Less common is the Lime hawk (*S. tilia*), and rather

smaller; though named from the Lime, its caterpillar is frequently taken off the Elm. It has just above the tail a curious plate, or what the late Mr. Newman called an "escutcheon," besides the usual horn. The wings of the moth have a conspicuous bar of dark olive green.

The large elephant moth is a June species (*Chærocampa elpenor*), which turns up occasionally in gardens throughout our island, but it seems to be rather fond of the southern counties and chalky localities. There is nothing elephantine about the moth, either as to appearance or movements; the name was suggested by a peculiarity of the caterpillar. Its flight is rather rapid, in colour it is greenish brown, with a good deal of pink on both wings and body. In the caterpillar we perceive that the fore segments are rather prolonged, a fact which led an old naturalist to compare it to an elephant's trunk. It is green or brown, having two distinctly marked eye-like spots on each side. Some specimens were sent me by a gardener, asking what the "odd creatures" were that he found feeding upon his Vines. Other people have also taken the caterpillars on Vines in the open air, or even under glass, and the moth has laid her eggs upon shrubby Fuchsias. But its favourite food plant is considered to be the Hairy Willow-herb (*Epilobium hirsutum*). It feeds during August. The caterpillar of the rather rare Bedstraw hawk moth will eat Fuchsias, though its usual food is some species of Galium, from which it is named. It is smaller than most we have mentioned, and is rather partial to the coast; we don't know why, for Bedstraws are abundant everywhere. I was shown one of these hawk moths captured in a London garden, perhaps it had taken a long journey thither by rail.

We pass now to large moths of a different tribe, and to these neither garden nor wild sweets offer any attraction; their flight is rather slow, but some are brisker in movement, and will even career about by day in the sunshine. We have a good example in the Oak egger (*Bombyx quercus*); towards the end of June or in July it takes excursion both by day and night, nor is it easy to capture. This is a handsome species, the male insect especially, garbed in rich chestnut brown; the female is a little larger, and yellowish brown. The caterpillar feeds during early summer after a winter's sleep; it has, no doubt, been taken on Oak, but mostly feeds on Sloe and Hawthorn; it is found on Apple in orchards. This is a large caterpillar when full grown, and looks larger because it is clothed with hairs which hide the velvety black of the body, but this shows between the segments if the caterpillar rolls into a ball. The cocoon is compact and egg-like, making one wonder how it gets inside; the hairs, of course, are stripped off. Also named from the Oak is the lappet moth (*Lasioampa quercifolia*), though the caterpillar seldom feeds upon that tree. About gardens and parks it is sometimes found on Poplars, Willows, and the common Bramble, being protected by grey or brown hairs, and exhibiting also several tubercles, the so-called "lappets," and a beautiful purple stripe across the back. During the day the moths sit with wings curiously folded up, and thus probably escape birds.

There is a large moth we might feel ourselves justified in killing had we the chance, this is the too well-known goat moth (*Zyaleutes cossus*), a species which records its history on so many trees. It flies in June and July, and is said to have been occasionally attracted by the sugar entomologists spread upon trees for the capture of moths. Resting by day on trees, walls, or palings, its grey and light brown colours often harmonise with some object, and nobody observes it. The visits of the female moth to our gardens may be regarded with suspicion, since she deposits eggs on a great variety of trees, though very partial to the Elm, Oak, and Willow. Each is placed well under the bark by means of a long ovipositor, and the number laid is considerable. An emergence of moths occurs annually, in greater or less numbers, as may happen from several causes, but the caterpillar's life extends to three years. The cocoon is artfully made close to the bark, so that the moth may easily emerge.

We may just mention two more species that are familiar June moths, and of tolerably good size, though not ranking amongst the giants. The first is the garden tiger (*Arctia caja*). Its bright colours might attract birds, but during the day it keeps concealed amongst low plants or shrubs, flying after sunset to continue the species. Everybody knows the caterpillar with its long, dark, silky hairs, rather of a roving habit, but not a mischievous garden insect. If the moth, as is supposed, lays about 700 eggs, it is surprising we do not have more caterpillars; possibly a good many die in the winter. The second is the buff-tip moth (*Pygæa bucephala*), a very abundant species, which has not only the well-marked buff tip, but many other markings in grey, brown, and purple, yet, while resting, manages to wrinkle the wings so as to look like a withered leaf. By the middle of July the young caterpillars are actively engaged in devouring the leaves of trees and shrubs, forming sociable parties of a dozen or two. When older they roam solitarily, rather shaggy creatures with black heads, and irritable, for they will try to bite, but cannot pierce the human skin.—ENTOMOLOGIST.

NOTES & NOTICES

Royal Horticultural Society.

The next exhibition and meeting of the above will be held on June 9. A lecture will be given by Sir George Birdwood on "Wild Flowers and Wild Shrubs."

Yuccas for Japan.

The Japanese Government is importing large numbers of Yucca plants from Chili. The tops of the plants are said to contain an abundance of picric acid, which the Japs use in the manufacture of shimose powder, the high explosive employed with deadly effect in the war with Russia.

Sussex Weather.

The total rainfall at Franklyn Road, Haywards Heath, for the past month was 2.10in, being 0.25in above the average. The heaviest fall was 0.43in on the 29th. Rain fell on twelve days. The maximum temperature was 79deg on the 31st; the minimum 37deg on the 11th and 24th. Mean maximum 67.10deg; mean minimum 45.22deg; mean temperature 56.16deg, which is 2.48deg above the normal of the month. A variable month; but with some fine, bright, warm days from the 18th to the end. Most things are late, but everything has made wonderful growth during the last week. It has been 83deg in the shade to-day, 1st inst., and a thunderstorm is in progress while I write this evening.—R. I.

The Thalictrum as a Fern.

Someone has been faulty in his botany when he wrote the following, which we cull from our northern contemporary:—"The Thalictrum being of the fern family, and very often called the wild Maidenhair, adheres very much to the fern nature, and will grow with amazing vigour in a moist situation in any common garden soil; nevertheless, like all the subjects of the fern tribe, it is very fond of peat and sand, and with those two elements added in equal portions to the soil the Thalictrum may be expected to grow to fair dimensions, and become objects of rare beauty." The Thalictrums belong to the Buttercup family—the Ranunculaceae.

Cheap French Strawberries.

The Strawberry harvest on the North of France, from Brest to Havre especially, is, says "The Standard," unusually heavy, and as the result increased supplies of these fruits are to be exported to England through the present season. The first arrivals of selected berries in small baskets reached the London markets this week, and were disposed of at from 2s. to 3s. a basket—the lowest price for this period for years. These decreased values were largely due to the abundant supply of English forced Strawberries on the markets generally. Further, the hot weather has rendered increased exportations of French Strawberries absolutely necessary in view of the immense yield available. There are signs that before the present season is over several gluts of French Strawberries will have to be dealt with by English market dealers and importers.

Egham (Surrey) Gardeners' Association.

The May meeting of this association proved a very successful one. A thoroughly practical demonstration on "Wreath Making" being given by Mr. W. Hayward, of Kingston-on-Thames. Mr. H. Peerless presided. Mr. Hayward began with the foundation for wreaths, impressing on the audience the necessity of having the moss bound firmly on the frame; next showing the different ways of wiring each kind of flower, and then making three beautiful wreaths. He clearly proved himself to be an expert artist in natural flowers, and finished by giving a large number of lantern slides of different floral designs made by him, many of which had obtained highest honours at exhibitions. A hearty vote of thanks was accorded the lecturer. Mr. Worsfold (gardener to C. H. Austin, Esq.), exhibited a fine lot of Schizanthus in pots, and was given thanks. Mr. White obtained the prize for Cabbage in the cottagers' class.—H. P.

Gardeners' Royal Benevolent Institution.

Sir Frank Crisp, LL.B., J.P., has kindly forwarded the sum of £31 6s. 5d. in aid of the funds of the Gardeners' Royal Benevolent Institution, being a portion of the proceeds of admission fees received for opening Friar Park, Henley-on-Thames, to visitors.

Jubilee of the Grand Yorkshire Gala.

This floral and musical exhibition will be held on Wednesday, Thursday, and Friday, June 17, 18, and 19, 1908, in Bootham Park, York. Prizes for fruits, flowers, and plants to the amount of £1,050 will be awarded, for which some of the first florists in the kingdom will compete. The flower tents will be closed at half-past five o'clock on Friday evening.

A Rose Show in Leipzig in 1908.

Under the protection of H.M. Friedrich August, King of Saxony, an exhibition of Roses will take place in the Leipzig Palmengarten from June 27 to July 5, inaugurated by the Gärtner Verrin of that city. Applications should be addressed to Otto Moosdorf, jun., Leipzig, Lindenau. The exhibition will, we understand, be international in character.

Weather in Perthshire.

The last week of May has been one of bright sunshine, in which vegetation has made great progress, and the country is now fairly clad in her fresh vernal dress. Between Saturday and Sunday copious rain fell, which was very welcome, and Sunday was a perfect summer-like day. Monday, although cloudy, was warm and genial, with the thermometer at 68deg.—B. D., South Perthshire.

The late Mr. Charles Ingram.

Mr. Charles Ingram, gardener and florist, was found dead in his room at Wellesley, Mass., on Sunday morning, April 5. The medical examiner who was called stated that death was due to rheumatism of the heart. Mr. Ingram, who was otherwise of sturdy and athletic build, had been a great sufferer from rheumatism from time to time for many years. He was born of Scotch ancestry at Reading, England, and, by a notable coincidence, he is now buried at Reading, Massachusetts. His father was gardener for the Duke of Northumberland at Alnwick Castle, and he himself was a gardener of no mean ability, having served as foreman in some of the most famous estates in England before coming to this country twenty years ago. He was at one time on the staff of the "Gardeners' Chronicle" under Dr. Masters, a position for which a good education and brilliant mind well fitted him. His first place in this country was with the late Charles Evans, after which he was connected successively with several florists' places in the vicinity of Boston and latterly with S. J. Reuter, Westerly, R.I., a western sanitarium, and W. J. Dana, Wellesley Hills, being employed by the latter at the time of his death. His age was forty-six years.—(Horticulture.)

Bristol Gardeners' Association.

The first meeting of the summer session was held on Thursday, May 28, at St. John's Parish Rooms. Mr. A. O. Shelton presided over a very good attendance. "Herbaceous Plants for Small Gardens" was the opening subject. Mr. J. C. House, the lecturer, said there are many disadvantages with small gardens, but better times were coming; many things point towards people possessing larger gardens. Motor traction, garden cities, and small holdings are all bringing that time nearer. Mr. House gave some useful hints as to the formation and arrangement of gardens, also giving a list of suitable plants. *Doronicum*, *Trollius*, *Geum*, *Centaurea*, *Heuchera*, *Iris*, *Poppies*, *Pyrethrum*, *Aquilegias*, *Paeonies*, *Delphinium*, *Gaillardia*, and *Phlox* were mentioned. With a little management, the flowering season can be considerably extended. Mr. House was awarded a special certificate for a splendid collection of cut blooms, including *Dodecatheon* (American Cowslip), very pretty; *Trollius* T. Smith (a giant); a dark purple *Verbascum*, and some of the newer varieties of Oriental Poppies. A medal and three framed certificates were presented to the four under-gardeners making the best attendance during the past session. Fortwo pots *Schizanthus*, Mr. Morse (gardener to Sidney Humphries, Esq.), was first; Mr. Perry second.—H. W.

Death of Mrs. Arnott.

We regret to announce the death of Mrs. S. Arnott, wife of Mr. S. Arnott, of Sunnymead, Maxwelltown, Dumfries, on the morning of Saturday last, May 30. Our deepest sympathy is extended to the bereaved husband and his relatives.

An English Gardener in America.

The American exchanges chronicle the death of Mr. Wm. Griffin, who was born in Kent, England, fifty-nine years ago. His death is a great loss to American horticulture, where, like so many other British-born and British-trained gardeners, he practised the business of garden-designing.

Cumberland Potato Trade.

The Cumberland Potato trade has now quietened down considerably, and lots are this week being bought wholesale as low as 70s. per ton. Taking the season through, however, the price has mostly been in favour of the growers, quotations having at one time been up to 90s. The Irish supplies have of late been a factor in keeping down the price. There is no sign of supplies running short, as was earlier on thought possible owing to the all-round reduced yield caused by the disastrous weather.

Queen Alexandra's Pygmy Tree.

When Queen Alexandra paid her surprise visit to the Temple Flower Show she and Princess Victoria stopped in the grounds to admire an exhibit of pygmy Japanese trees, and her Majesty expressed a wish to purchase one of them. Though the custodian of the exhibit was nowhere to be found, the purchase was eventually arranged, and on the second day, protected from the sun by a little Japanese umbrella, a quaint little gnarled Larix, sixty years old, exhibited by Messrs. James Carter and Co., was labelled, "Sold to the Queen."

Asparagus Island.

"At Kynance Cove, in Cornwall," says the "Daily Telegraph," "there is a small rocky island, called Asparagus Island, which owes its name to the fact that, at one time, the now popular vegetable was cultivated within its area. That this should have been so remarkable, in the almost forgotten past, as to call for special distinction by naming the place noted for Asparagus culture in so marked a manner seems inexplicable to the up-to-date Londoner. It is difficult for the present generation, especially the younger members of it, to think of Asparagus at this time of the year in any other light than that of a choice yet fairly plentiful vegetable."

Bath and District Gardeners' Debating Society.

The usual fortnightly meeting of this society was held at the Foresters' Hall. Mr. T. Parrott presided, and was supported by Mr. F. L. Ashman (hon. sec.) and Mr. C. Adlum. There was a small exhibition of flowers, Mr. C. Wall obtaining a first class certificate for a vase of Carnations. J. Franks (gardener to the Rev. P. P. Edwards) obtained a certificate of merit for a pot of herbaceous Calceolarias. The secretary read a letter from Henry R. Farmer (gardener to Lord Bute) welcoming the Bath Gardeners' Society to the grounds at Cardiff Castle for their annual outing. It was unanimously agreed to go, if possible, for the outing on the day of the Cardiff Flower Show. In the absence of Mr. J. H. Peggott, who was announced to read a paper, Mr. W. Taylor kindly substituted an excellent paper on "Grape Culture." The usual votes of thanks were accorded.

Sunday Closing.

We have no doubt that the plea for a Sunday of rest for the florist will find a responsive echo generally throughout the trade. The exactions of the florists' business need not be enumerated for the enlightenment of our readers. That they are almost unbearable will not be denied. That they operate against the best advancement of the art by dissuading many capable and intelligent young men from taking up the florist's business as an avocation is a logical proposition. That the closing of stores on Sunday would entail no serious loss, provided the custom is made uniform throughout the community, will be generally admitted, we think. How to bring about the needed uniformity of compliance is the problem. Compulsory closing, wherever tried, has not been permanently successful so far as we are aware. Agitation through the clubs and trade papers with a view to developing the reform sentiment among the florists might accomplish something.—("Horticulture.")



Mr. Geo. Mount's Cut Roses.

The illustration on the next page will serve in a measure to show the character of the display of cut Rose blooms staged at the Temple Show by Mr. George Mount, of Canterbury. It only shows a portion. There must have been hundreds of Roses in this display, and all were of the finest quality. Our representative said in his report last week that no one exhibits such fine forced Roses as Mr. Mount, and we find nothing to cavil at in his remark. From February until the end of June these Roses from under glass are shown from Canterbury in the highest state of excellence. We do not know whether Mr. Mount's plants are placed out in beds or borders in his houses; but those other good rosarians, Messrs. Lowe and Shawyer, raisers of the new Joseph Lowe, h.t., grow theirs planted out. The ground is trenched 3ft deep. A layer of crushed bones is placed low down in the soil, and with a suitable top-dressing of well-rotted dung, which is also incorporated, the young Rose plants are set out in rows. They are grown on to make the best wood possible by September, and are then rested, only to be started two months later for the earliest batches of flowers; or later, for successional. The treatment, as may be imagined, has to be of the most liberal character in order to get high-class blooms with stems of 1ft to 2ft in length. After the seventh year, a new set of plants, we believe, take the place of those that have been thus successively forced. Such commercial rosarians must, of necessity, raise large quantities of young stock by budding and grafting, to keep up their cut flower plantations, and to make good the blanks that always occur. Under such conditions of high feeding and forcing, a goodly percentage of collapses are to be found.

Mr. Mount deserves all the congratulations and commendations he receives. The strength of stem and the remarkably high colour of the flowers are common matters of comment. This year he has exhibited dozens of flowers of the new rose-pink Rose, Joseph Lowe, at each of the fortnightly R.H.S. Shows since February. He always arranges them in semi-circular mounded masses. Other varieties that he does well are Ulrich Brunner, Liberty, Richmond, Fran Karl Druschki, Kaiserin Augusta Victoria, Mrs. John Laing, and Mrs. W. J. Grant.

Hybridising Among Wild Roses.

When it is considered that more than eleven thousand Rose varieties were listed by Simon in 1906, that countless varieties have fallen out of record, that about a hundred new ones are commercially introduced each year, and that of this vast host scarcely fifty, all told, are suited for culture in ordinary American gardens, it will be realised that radical changes in breeding ideals and methods are needed, if the really hardy garden types of Roses are to be advanced in public favour.

By hardiness is meant not only frost resistance, but resistance as well to fungous disorders, such as leaf mildew and black spot. The latter is the bane of modern Rose gardens, and effectually bars the outdoor cultivation of scores of the most desirable varieties of the hybrid perpetual and hybrid tea classes. Apparently the only means of overcoming this serious defect and of breeding in new and distinct characters is by the free use of vigorous species and well fixed natural varieties. Something has been accomplished within the last fifteen years by the use of such robust Asiatic species as *Rosa rugosa*, *R. Wichuraiana*, and *R. multiflora*, but the surface of hardy Rose breeding possibilities can scarcely be said to have been scratched. The work of breeding wild Roses by selection and hybridisation with kindred species and garden varieties is arduous, slow, and affords only an infinitesimal chance for pecuniary returns. The standard of perfection in Rose blooms is now high, and only those approaching in finish the difficult varieties are likely to be tolerated, even if borne on the most rugged plants.

The writer has been working with native and old-world species for many years with moderate success, but at nothing like the rate of progress that was hoped for at the outset. Native Roses are particularly trying, many appearing sterile with any but their own pollen, while others, though susceptible to hybridisation, show little change in the cross-bred progeny. *Rosa lucida* rarely perfects seeds when treated with foreign pollen. Out of, perhaps, 1,000 pollinations with many species and varieties a dozen hybrids of this common Eastern species with *R. rugosa* and *R. spinosissima* were raised. In the *rugosa* cross the plant is more vigorous and thorny, with larger single flowers and broad, shining, but not rugose foliage. The Scotch Rose hybrid is of weak growth, with pale imperfect

blooms; not promising. Three successive generations of lucida-rugosa seedlings, most of them pollinated with other Rose species and varieties, have been grown, but no further changes are apparent. *R. lucida* and *R. Wichuraiana*, however, has yielded one of the most robust hybrids we have ever seen, of semi-sarmentose or climbing habit with profuse corymbs of large, single, blush-white blooms. A plant in six years' growth, without support, forms a mound of foliage 8ft high and more in diameter.

No success has rewarded attempts to breed *R. carolina*, *R. Fendleri*, *R. Woodsii*, *R. arkansana* and *R. Sayi*, which latter appears to be regarded as a variety of *R. acicularis*. All are completely sterile to foreign pollen under our cultural conditions. The self-fertilised seedlings of *R. Sayi* vary considerably, and superior varieties might in time be developed by selection.

Rosa nitida has proved the most tractable of this type of Rose. Very handsome hybrids with single to quite double blooms of good size, ranging in colour from light pink to deep crimson, have been secured by first crossing with double-

interesting hybrid is difficult to propagate, and may soon be lost.

R. moschata crossed with garden varieties of the Bourbon Rose has given some attractive and free-blooming dwarf plants with large single and double flowers, deep colours of red predominating. There is more tendency to stripings and variegations with lighter colours than in the seedling of any other species.

R. rubiginosa blends freely with many other hardy varieties, but crosses with difficulty, if at all, with Roses containing blood of the tea-scented kinds. Several hundred seedlings have been raised, most of them equal, but few superior, to those produced by Lord Penzance of England. A selected *rubiginosa* x Fisher Holmes (hybrid perpetual) grows 10ft high, and produces very brilliant semi-double crimson flowers followed by large clusters of conspicuous orange red fruits.

R. lævigata can be induced to form viable seeds with pollen of a considerable number of species and varieties, but our seedlings, even under careful greenhouse treatment, have not reached the blooming age, though many grow with considerable



Mr. George Mount's Roses at the Temple.

flowering varieties of *R. rugosa* and breeding the hybrids to the most robust hybrid perpetuals. The habit of the latter crosses is upright, with abundant shining rugose foliage and prickly stems. They bloom abundantly in spring and occasionally during summer. The fruits are intermediate in size between those of the parent species, but endure until late autumn.

Rosa setigera has been disappointing. There is little difficulty in securing densely double-flowering hybrids of good colour, but the plants fall off in vigour and do not maintain effective foliage. A pretty cross or two was made with tea Roses, but the plants were tender and very susceptible to mildew. The species is hardy, resistant, and deserves further attention, as it is credited with producing *Prairie Queen* and other useful hardy climbers as a result of crossing with *noisette* Roses.

FOREIGN SPECIES.

Rosa ferruginea produced, when crossed with a hybrid China variety, a beautiful bright pink bloom of moderate size so densely double that it is a veritable pompon, borne on a stout, thornless plant with reddish foliage. Unfortunately this very

vigour for a year or two. *R. Wichuraiana* pollinated with *lævigata* has given a hardy and beautiful climbing Rose with large shining foliage, and enormous semi-double white blooms, yellow in bud. It is apparently a variety of much value. Seedlings of *lævigata* crossed with the best white teas and hybrid perpetuals are again under way but are likely to perish as before. The only known commercial hybrid of the Cherokee Rose is *Anemone*, with large single pink flowers. It is supposed to be a blend of *lævigata* with a tea Rose.

R. multiflora has great promise as a breeder for garden Roses. The type readily produces densely double blooms of good size, as a result of crossing with superior garden varieties. *Crimson Rambler* and others of the polyantha section are being widely used as seed or pollen parents and with excellent results. *Multiflora* x *Persian Yellow* has produced with us a climbing variety, having buds of flaming nasturtium scarlet, opening into yellow double blooms which successively change to white and finally to pale rose.

R. Wichuraiana has leaped at one bound to a foremost position among Rose species desirable for breeding. Thousands

of hybrids have been raised in all Rose-growing countries. Something like fifty-four named varieties of *Wichuraiana* parentage had been put in commerce by the end of 1905, and others appear each season. *Wichuraiana* hybridises so readily that it is scarcely possible to grow the species true from seeds, if other Roses in the vicinity bloom at the same time. Its late season of flowering and facility of bud propagation are all that will save the type from disappearing under cultivation. It appears to blend readily with almost all species and varieties, the hybrid blooms largely taking on the characteristics of those of the pollen parent while the plant retains much of *Wichuraiana* habit. Some of the most beautiful new garden Roses owe their attraction to *Wichuraiana* influence. So far, however, the greatest success has been with direct or bi-specific hybrids. Attempts to grow secondary and dilute crosses, though very general, have not met with conspicuous success, the offsprings reverting or falling off in quality to a remarkable degree. There is widespread desire to produce continuous blooming Roses of *Wichuraiana* character. This has seldom been accomplished by direct crossing, but many dwarf continuous blooming plants result from seeds of characteristic *Wichuraiana* hybrids, either self or cross-fertilised. They are seldom of any value from a rosarian's standpoint.

Rosa rugosa is plainly the most hopeful species for breeding high-class garden varieties. The hardiness, vigour, and handsome foliage of the species and its immediate varieties, together with the great size and fragrance of the flowers, and long blooming season, at once place it beyond comparison. The work of amelioration has been found to be slow and difficult, though steady progress is made. More than one hundred hybrids and varieties have been introduced to general cultivation, and scores of good ones are still in the hands of originators. Contrary to experience with *Wichuraiana*, the best results are gained in dilute *rugosa* crosses. It is necessary to remove two or more generations from the wild type to gain texture of petal and purity of colouring. This has been done in such superior varieties as Conrad Ferdinand Meyer, the result of a double cross represented by *Gloire de Dijon* x *Duc de Rohan* (hybrid perpetual) x *rugosa Germanica*, the last a hybrid between *rugosa* and a Provence Rose. The blooms are perfect from the fancier's viewpoint, and are most freely produced throughout summer, but the *rugosa* foliage has vanished. The writer has produced, by pollinating a selected double-flowering hybrid *rugosa* with *Victor Hugo*, a plant of extreme *rugosa* character, but with large densely double blooms, scarlet-crimson in colour, but of such fire and brilliancy that they even surpass those of its glowing pollen parent. Other crosses of white *rugosa* on *Clothilde Soupert*, a tea-polyantha variety, resulted in the splendid continuous-blooming varieties, *New Century*, white, blush centre, and *Sir Thomas Lipton*, pure white, that are well worth growing in the most exclusive gardens. The possibilities of *Rosa rugosa* are slowly yielded, but will be of overwhelming value to future breeders.

Something should be said of *R. spinosissima* and *R. lutea* in their best garden forms. The Scotch Rose and *Harrison's Yellow* both hybridise well with *rugosa*, and have produced very attractive varieties. The writer has not succeeded so well when using *Austrian Copper* and *Persian Yellow*. Hopeful species for breeding that should be introduced in this country are *R. gigantea*, a large-flowered climbing species, native of Burmah, that has produced a superior variety in Portugal, by crossing with *Gloire de Dijon*; *R. Hugonis*, yellow-flowered, and *R. Soulieana*, with white flowers in corymbs, both native to Western China. (Prepared for American Breeders' Association by Dr. W. Van Fleet, Little Silver, N.J.)

Eighteenth Century Gardening.

Trees and Shrubs.

An acquaintance with the gardening literature of this century enables one to determine with some approach to exactness the increased interest that was taken in trees and shrubs. Enormous quantities of forest trees were planted in its earlier years, and a little later shrubs attained to a greater popularity than had ever previously been their portion. The wilderness was to a large extent a wild garden and shrubbery, and later, when the landscapists appeared, shrubs became indispensable furnishings of lawns, and blinds to buildings and unsightly objects. The nobility (of whom the Duke of Argyll may be mentioned as a prominent planter at Whitton) and gentry vied with each other in adorning their grounds with the novelties which Catesby found in America, and those which Collinson a little later was the means of introducing. The voyages of Captain Cook in the southern hemisphere resulted in the introduction of others, and at least one nurseryman, Gordon, seems to have initiated the custom of importing novelties by means of persons visiting foreign countries.

Not a few woody plants were lost after their introduction, their cultivation and propagation being misunderstood, a usual mistake being the fear that the English climate was unsuitable,

and a system of coddling, which ended in annihilation, being indulged in. Probably the severe winters which were of frequent occurrence early in the century may have caused over carelessness, and it is certain that the winter of 1739-40 killed out not a few shrubs which had been assumed to be quite hardy. On the whole, therefore, it may be concluded that the century was well on its way before the newer species were generally cultivated. The science of botany was still the handmaiden of the art of healing, and it is curious to read in the more learned of the books, such as that of Dillenius' "*Hortus Elthamensis*" and Catesby's "*Natural History of Carolina*," the supposed or hoped-for physical properties the plants described might possess. Early in the century the garden of Bishop Compton and of the Duchess of Beaufort continued to be the chief depositories of novelties. Moira in Ireland was also a noted garden, and the gardener travelled to the West Indies in search of new plants. The brothers Sherrard were also useful introducers, the Eltham garden becoming what Lambeth gardens were previous to the death of Compton. Catesby is said to have derived the greatest help in his work from the elder of the two, and it was the latter who discovered Dillenius and brought him to England.

Catesby was instrumental in introducing American plants in numbers which had previously never been equalled. Of the shrubs and trees mention may be made of *Fagus pumila*, *Quercus Phellos*, *Juglans alba*, *Prinos glaber*, *Myrica cerifera*, *Casalpinia brasiliensis*, *Liquidambar styraciflua*, *Cornus florida*, *Magnolia glauca*, *Gordonia lasiantha*, *Calycanthus floridus*, *Liriodendron tulipifera*, *Azalea viscosa*, *Bignonia radicans*, *Chionanthus virginica*, *Magnolia glauca*, *M. grandiflora*, *M. tripetala*, *M. acuminata*, and *Stuartia virginica*, spelled originally *Steuartia* in honour of the Lord Bute of that day. Philip Miller next took up the running, and nothing in the way of new plants which reached England till 1770 but passed through his hands. Miller was not only a gardener, but a botanist, combining the practical and the scientific in a manner which gave him advantages possessed by no other gardener or botanist of his day.

Of the nurserymen famous for trees and shrubs Fairchild, of Hoxton, may be named, but he was perhaps more of a florist than a nurseryman. Gray, of Fulham, was, however, a nurseryman on a large scale, and his catalogue, extending to fifty-three pages, of date 1740, contains perhaps every kind in cultivation at that period. The priced list of the Telfords, of York, which unfortunately is only partly dated 17—, is also an interesting compilation. From the prices of some of the species it might be assumed to embrace the early half of the century. The purchaser, as is apparent from other lists, must have had a fair knowledge of the plants to enable him to choose, the botanical name being usually absent or distorted. The prices vary in a remarkable way. Thus, *Itea* is 2s. 6d., *Dier Vella* (*Diervilla lutea*), 3d., *Hottentot Cherry*, 5s., common *Spiraea*, 3d., and variegated *Hollies*, 2ft high, 9d. each; 2ft *Yews* were 50s. per 100; *Scots Firs*, same height, 15s. per 100; *Cedar of Lebanon*, 9in high, 2s. 6d. each. Mr. James Gordon had his nursery somewhere about Mile End, as also Malcolm, but the latter seems not to have had the same standing as the former. The latter half of the century Kennedy and Lee, or Lee and Kennedy, seem to have been the chief introducers of shrubs and trees, but nurserymen in a large way were then all over the kingdom.

Outside of what may be termed the special literature of the subject, it can be gathered that here and there at least the culture and management of trees was well understood. The magnificent specimens of timber still existing of trees which were planted and grown on to large trees during the century, prove that fully. The Earl of Haddington's letter to his grandson demonstrates methods of raising and transplanting trees, preparation of ground, and pruning 200 years ago, which it is doubtful has ever been equalled. Boucher, whose father was a nurseryman before him, also shows that he, at least, was capable of producing young trees of the highest quality. The labour he expended on them was, in fact, ruinous to himself, but though perhaps the outlay could be borne only in private places, it is impossible to improve on Boucher's methods where the best results are looked for.

It is perhaps not generally known that the forester was barely evolved till the century was near its close, the gardener having charge of woods, trees, and shrubs.—B.

Potatoes or Potatoes?

It is in controversy whether the plural of "Potato" ought to be "Potatos" or "Potatoes." It used to be either; but, by a mere caprice of spelling, the latter form has come to be the accepted one. That great authority, Dr. Angus, a kinsman of Sir William Angus, points out in his "*Handbook of the English Tongue*" that the nouns in "o" taking "es" in the plural are of foreign origin—"calices," "cargoes," "echoes," "mulattos," "negroes," "volcanoes," "Potatoes." But why have we "cantos," "erotics," "mottos," "quartos," and "solos"? Certain it is that, in old English, all nouns now having their plural in "s" had it in "es."



New Hydrangeas.

The name of Lemoine, of Nancy, is known to everyone as a most successfully hybridist, and the successes that have emanated from that establishment form a very long list. Of late years attention has been devoted to Hydrangeas, and three new varieties are announced in their February catalogue of this year. They are said to be a selection from several thousand seedlings, the result of artificially crossing *H. Otaksa monstrosa*, *H. Mariesi*, *H. Souvenir du Claire*, and *H. rosea*. From these a good number of plants were selected for further observation, and three varieties were ultimately chosen therefrom. They are *Avalanche*, described as the whitest of the Hydrangeas; *Fraicheur*, enormous clusters, flowers medium, round, white, shaded rose, tips greenish, eye mauve; *La Lorraine*, large corymbs and flowers, these last having the edges slightly toothed, in colour soft rose, turning to bright rose.

Callas.

As the Callas go out of flower reduce the water supply by degrees, and let the plants finish their growth. They then go naturally to rest, and as the foliage turns colour preparatory to falling, let them dry quite out. Place them outside in the full eye of the sun and let them have a thorough baking. In an ordinary summer there is no need to turn the pots on their sides, as is sometimes done; the little rain that falls will not injure the bulbs or start them growing. But in localities where there is a very heavy rainfall it may be advisable. At all events it can do no harm, provided they are again moved and set upright before the new growth starts. Otherwise the young stems would draw towards the light and get crooked. Potting the bulbs need not be delayed as long as is often done. They may be repotted at any time after they have had a good baking, and may then be stood level and pot thick, still in an open situation. If one good soaking of water is given after repotting the bulbs, no more will be needed until they begin to grow. There is no question that the outdoor summer culture, giving them a thorough ripening, is best for these useful plants.

English Irises.

The numerous species and varieties of hardy Irises are indispensable perennials for gardens and garden lovers. A great many of them are easily grown, but where the cultivation of any of them is attended with a little trouble it is well worth the effort to enjoy their lovely flowers. The English Iris (*Iris xiphoides*) belongs to the bulbous section of the Irises, which includes those lovely gems, the Spanish Irises (*Iris xiphium*). The name English Iris is really a misnomer, as it is never found in a wild state in England, but this name was attached by accident, and it has become firmly established; but the native home of this Iris is in the Pyrenees. The English Iris is a splendid subject for gardens. The noble luxuriant blossoms, supported on stout stems, one to two feet tall, with the rich foil of dark green abundant foliage ascending from the base of the stems and upward, render it bewitchingly attractive. The variety *Mont Blanc* (some botanists regard this as a species) is one of the favourite kinds, and has large, delicate, white flowers. *Duke of York* is light bluish purple, with a spot of creamy white in the centre. *Leon Tolstoi* might be described as a light velvety purple, and is a most elegant flower. There is a number of beautiful varieties which can be selected according to taste. The bulbs should be planted late in the fall in rich, moist, warm soil, about 3in to 4in deep and about 4in to 5in apart. When thickly planted the massed effect is much better. They occasionally will do with us fairly well for two years without disturbance, but sometimes the second year will show a decided failure. We always have the best results when we lift the bulbs after they have ripened, dry them, and re-

plant in the fall in a new location. As they are inexpensive, a few additional bulbs should be secured annually.—JOHN DUNBAR (in "American Florist").

Fuchsias.

These should be placed in their flowering pots now, and as they make a considerable amount of growth between now and flowering time, a fairly large shift should be allowed, observes an exchange. Young plants in 3in pots should be given 6in or 7in pots and a substantial compost, to which may be added a good proportion of horn shavings, bone dust, or some lasting fertiliser. From now on it is impossible to keep Fuchsias too cool in the ordinary greenhouse, and only the lightest of shading should be given just to keep the foliage from being injured. Pot firmly and, when staging the plants, give them ample room, as they will grow rapidly. The most desirable form for a Fuchsia is the pyramidal, which most varieties assume naturally if allowed to do so, but this is a matter for the individual grower to consider. If he has a call for plants in bush form, then these must be pinched regularly until this is attained. For the pyramid it is only necessary to keep the plants growing in a good light and pinch out the flowers as they form until about six weeks before they are needed in flower. Water freely when the roots are working well, and keep an eye lifting for white fly.

Poison Ivy.

Each recurring spring brings forth a fresh crop of people poisoned by poison Ivy (*Rhus toxicodendron*) and poison Sumach (*R. venenata*). It may interest them to know that the poison is reputed by some to be due to an acid called toxicodendric acid, and by others as due to an oil called toxicodendrol. Whatever the cause of the poison, the intolerable itching may be allayed by a variety of alkalies. The old-fashioned remedy was a poultice made by spreading softsoap on a piece of bread and applying it to the infected part. Now that softsoap has given way to the various bar soaps, the cheapest laundry soap will do just as well. Washing soda or sodium hyposulphite is recommended, and painting the poisoned part with collodion has its adherents also. *Rhus* poisoning and the disease erysipelas have many characteristics in common. Cows and sheep eat the plant without harmful effects. It is said that leaves of various species of Sumach (*Rhus*) have the property of expelling their resin with noticeable violence when placed in water; but like many another "it is said," nobody seems to have looked into the truth of the matter. We shall be glad if anyone can enlighten us.—("American Botanist.")

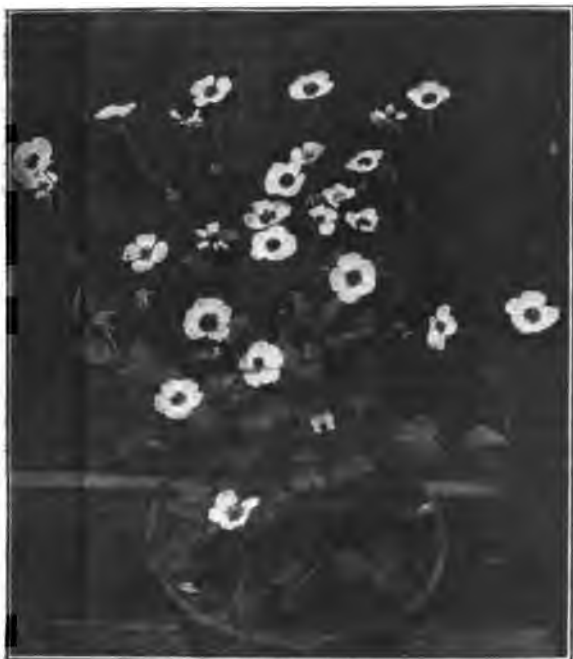
Hedychiums for Bedding.

When the young shoots are 6in or so high, and the pots are filled with new roots, a weekly application of diluted manure water will help them greatly. They should be kept syringed, and given plenty of light, and until the flowers appear a temperature of 80deg or 85deg will suit them well. Given liberal treatment they will grow rapidly, and as soon as the flowers show signs of opening the plants should be moved to a drier and cooler atmosphere, where they will last much longer in bloom. *Hedychiums* are admirably adapted for house and conservatory decoration, most of them being very sweet scented and handsome in appearance. When they have finished flowering, remove them to a cool house, and as the winter advances give them less water. The flower heads should be cut off, but the stems are better left all the winter; indeed, they need not be cut off until the new growth appears in the spring. Give enough water during the winter to keep them healthy, allowing the soil to become quite dry before doing so. It is not at all necessary to repot them every year, but every alternate year give a good top-dressing and well water in. Some of the species (says a correspondent in "The Gardening World") may be used during a warm summer for sub-tropical bedding out of doors; in fact, I have seen them used in this way with great effect. They enjoy plenty of sun and light, but during the summer must be well watered. The secret of their successful culture is plenty of heat and moisture when growing, and during the resting period keeping them partially dry and in a temperature of from 50deg to 55deg.

The Beauties of the West.

From the quaint old town of Warwick to majestic Torquay, sometimes termed the "Queen of the West," is a far cry, yet both places have characteristics in common, even though they differ in other respects in a remarkable degree. In regard to the latter point one is in the heart of England at the farthest possible distance from sea, while the other gathers all her enchantment and renown from the beauty of her marine surroundings. Both, however, are alike in that they carry the mind backward by continuous records to the earliest days of English history, and trace the fortunes, the fickleness, and the gaiety of kings and queens. Thus the grey walls of Warwick and the towering cliffs of Torquay supply links with the mighty past.

Doubtless in the old days when the stage coach supplied the favourite method of locomotion the long journey was a tedious one, and even now by the aid of the "iron horse" it is formidable on account of the indirect route, but owing to the beauty of the country traversed it can scarcely be tedious to the lover of Nature, especially when the journey is made during the freshness of a delightful day in May. It is always interesting to travel from the cold to milder parts of England during the spring months, in order to note the more advanced state of vegetation in the various districts traversed, but in cold and



Ranunculus amplexicaulis.

late seasons like the present one the difference is often not so marked as one might have expected. This was our experience during a journey from Warwick to Torquay on May 15. At our starting point Apple trees were in full flower, and we quite expected to find that when our destination was reached the trees in that district would have shed their petals; it was not so, however, for there again the Apples were in full flower, a condition which was prevalent throughout the journey, with the exception of a few districts where the flowers were scarcely fully expanded. The flowering of the Horse Chestnut is a fairly accurate test as to the earliness or otherwise of a district. On the 15th these were in full flower at Torquay, ten days later they were in similar condition at Warwick. In regard to vegetables it struck us in passing that those seen in the gardens at Chippenham, in Wilts, were as early as any noticed in Devonshire. Concerning the journey I need say but little, except that generally it lay through diversified and undulating country, where the pastures looked rich in their pristine beauty, and the blossom-laden fruit trees lent brightness to the landscape at innumerable points.

Torquay may well be termed the "Queen of the West," for who can fail to be impressed with her grandeur? Who would complain were she called the queen of the whole British coast? Standing at a point just outside the railway a magnificent scene meets the view. The huge cliffs of sandstone rock rise before us on the north and east, and appear like gigantic mounds separated from each other, but from the lower cliff between another mound rises and slopes backward toward the east, thus forming splendid shelter for the bay as well as unique positions

for residences, where shelter yet plenty of breeze and magnificent scenery can be obtained. Across the bay to the west the pretty town of Paignton is located, which, being exposed to the east, is much colder than Torquay in winter. Standing by the tramline which runs around the sea wall one might think the full extent of the bay could be seen, but after rounding the promontory at the east the bay widens and extends some miles distant towards Babbacombe and Dartmouth. The former is strikingly beautiful by reason of the finely wooded hills and cliffs which rise from the sea, and also because of the vivid blueness of the water. But let us for a moment again return to Torquay, which has quite a tropical appearance on account of the many fine specimens of *Cordyline australis* which skirt the sea wall and base of the cliff. The cliffs, too, are beautifully covered with a variety of creeping plants, some of which I had not previously seen, and at one point *Cineraria maritima* was growing (apparently in a wild condition). In a sheltered nook a fine specimen of *Eucalyptus globulus*, fully 20ft in height, presented a striking appearance. At the base of the cliff near shallow water, *Callas*, growing in "pockets" filled with soil, were commencing to flower. *Agave americana* and *Chamaerops excelsa* were also conspicuous. Splendid specimens of *Escallonia macrantha* were to be seen, but unfortunately, owing to the system adopted of clipping them closely, many were not flowering freely. *Cistus Ladaniiferus* and *Cistus L. maculatum*, *Ceanothus aureus*, *Choisia ternata*, and *Genista racemosus* are a few of the many other shrubs which were growing and flowering profusely. Paul's Carmine Pillar Rose was also noticed in flower.

Altogether Torquay is an ideal spot for those who admire commanding scenery, and who seek a restful seaside resort. The landsman will also find many other things of extreme interest, not the least among them being some evidence of the work of Britain's navy. During day and night battleships, cruisers, or torpedo destroyers move in and out of the harbour, and when perchance they assemble in goodly numbers it is inspiring to watch their ceaseless work at midnight. For a time they are drawn up in orderly array, with their lights shining brilliantly from various points, gradually some of the lights disappear, and signals flash from vessel to vessel; slowly a few, or many, as the case may be, move out to sea; in the distance other lights may be seen on the horizon, signals are exchanged again and again, and there is much coming and going hither and thither, and great beams of light from the searchlights illuminate the coast. Thus, good readers, while we sleep peacefully in our beds the gallant British tar is doing his country's work, with the same dauntless courage displayed in the days of Nelson. We all owe much to these "watch dogs" of the Empire, how much perhaps we shall never know, but what we do know is that Britain believes in and trusts her navy.—WANDERER.

Hardy Plant Notes.

Ranunculus amplexicaulis.

At once early in its flowering, graceful and dainty in its character, with snowy white little rounded flowers, freely produced, this is one of the gems of the genus. It is in bloom into June, where the plants are growing in a cool shaded spot, with a cool moist bottom, a deep loam suiting it; and it can be had in flower in the alpine house early in April. It furnishes an admirable plant for cultivation in pans, as our illustration shows. This, the Snowy Crowfoot, is a native of the Pyrenees and the Western (Provence) Alps, and under cultivation grows 9in to 15in in height. The flowers are white with a yellow centre, ½in to 1in in diameter, and as many as half a dozen may be borne on each branching, upright stem. The leaves are oval, entire, and glaucous grey.—S. E.

Achillea tomentosa.

The Woolly Yarrow is the popular name of this little rock or border plant, at one time more common in alpine collections than now. It is easy to cultivate; it will thrive in any moderately light soil, and its bright yellow flowers in flat heads look always attractive and cheery on their little stems and the woolly-looking leaves. There seem to me, however, to be various types in cultivation, and some are coarser, taller, and less tomentose than others. So great is the difference that there are forms which I do not care to retain, but prefer one of compact habit, not growing more than 9in high, and frequently not more than 6in. There are coarser types which will reach a foot high, and which are better in the border than among the alpine, although, even in the border, they should be discarded in favour of the neater growing one. I find it best to give this little Woolly Yarrow a sunny place in a light soil, and there it is generally satisfactory. It is increased by division or by seeds, but in the case of a compact-growing form, division is the best method of obtaining the plant true. When plentiful enough it supplies a charming edging, especially as it blooms for a long time in summer.—S. ARNOTT.



Habits of the Starling.

In reference to "C.'s" note on this subject, I write to say that I protect starlings, although they and the blackbirds steal nearly all my Cherries, grown only for private use. The latter I do all I can to destroy; but starlings are mainly insectivorous, and I allow them to breed in my farm buildings and in holes in large trees close to my house. I think it is highly probable that I have to thank the starlings for clearing some Gooseberry bushes near their nests of a partial and slight attack of the sawfly caterpillar. I find parts of bushes here and there cleared of leaves by caterpillars; but the latter are not to be found on those or other portions of the bushes. Can any reader say for certain that any other birds eat caterpillars, and which birds? Is the robin one?—B.

Fruit Prospects.

It appears to be generally agreed that the crop of Gooseberries in the country as a whole is an extremely short one, and that Black Currants are much below average in promise, while Plums in most districts will be more or less below the mark. Here, in the extreme south of East Sussex, frost did not injure my Gooseberries, Currants, or Plums, although it cut off the former in some low-lying places near by, and I have good shows of the bush fruits. But Plum blossom has not set at all well, although no frost has occurred here since it was fully expanded. Many great trees of Early Rivers are bare of fruit, and none have more than a sprinkling. Czars and Victorias are better, while Pond's and Gisborne's are worse, and Monarch has only half a crop. Czar alone blossomed profusely, and Victoria was the only other variety grown in quantity that blossomed fairly. Apples and Strawberries made great shows of bloom here, and Cherries are thick on the trees. Of Raspberries it is too early to write. Judging from what I have seen and read I should say that all fruits but Apples, Cherries, Strawberries, and possibly Raspberries will be much below average in quantity in the country generally.—A SUSSEX GROWER.

Birds v. Fruit Blossoms.

"We often read in the *Journal of Horticulture* of birds taking fruit buds, but have you noticed birds clearing out the blossom buds? For three seasons they have tormented us. This year I have kept the dwarf trees dusted with slaked lime, but it is of no use, because the blossom is protected by the young leaf, and as the leaves roll back and show the blossom bud, the birds peck them out, and leave a very poor crop of flowers to open. Has anyone else noticed this, and have they found a remedy?"

So wrote "R. A. C." when sending specimens of trusses of what should have been blossom buds, but which instead were mere stumps, representing the footstalks, with here and there a flower bud intact. The trusses had the usual corona of leaves that, while young, protect the blossom buds, and were quite free from aphides, Apple suckers, and caterpillars. We have had the blossom of Apple trees torn into shreds by house sparrows, and the reason assigned was that they were searching for aphides, which we could not discover even by the aid of a pocket lens. The work of devastation was so complete that the few buds left were indifferent, and the fruit produced of the worst form and irregular in size. Warner's King appeared the chief favourite sort with the sparrows. It followed that the sparrows were reduced to a minimum in number, and the following year the blossom buds on Warner's King were left alone, and they bore fruit that weighed down the branches. In another case Councillor was the particular favourite, and the difficulty was to find out what kind of birds were the culprits. The accusation was transferred from the sparrow to the bullfinch, of which thirty-seven had been shot that season in consequence of their being too assiduous in destroying the blossom buds of Plum trees, they having a particular fondness for the Gage varieties, Diamond and Early Rivers. The early riser found a pair of bullfinches at work on Dutch Mignonne, but the marauders were so alert that a person with a gun had no chance in the fruit plantation. Near by were plantations of Beech and Larch, with not a few Crab trees in the hedgerows, and there the pair found retreat. This game went on for a few days. The bullfinches

came to feast on the Apple blossom buds and as quickly departed on sight of the man. The order was given to follow the bullfinches to their fastnesses. It resulted in killing the female, and the male bird went off disconsolate in quest of another mate. The Apple blossom buds were then left alone. In a very short time afterwards the head gamekeeper came to the gardener, and with a great flourish of trumpets said: "You and your men have no business in the plantations disturbing the game. The birds take the buds for insects and do more good than harm." When asked, "What about sparrow hawks, stoats, and weasels, poaching cats and stray dogs?" the answer was, "Vermin—with them no game." The same with us as with him—no blossom, no fruit. Gardener and gamekeeper, however, got on famously afterwards; both were only acting in the best interests of their own and their employers' requirements.

The work on "R. A. C.'s" Apple blossom-bud trusses appears that of bullfinches rather than that of sparrows. These latter birds, however, do pull the trusses to pieces, sometimes eating the incipient flower buds, and this purely as food. In some instances sparrows are blamed for injury they do not commit. The caterpillars of the winter moth eat the tender growths inside the enveloping leaves. Sparrows sometimes intervene and take the looper caterpillars, while quite small, from the hearts of the trusses of leaves and flower buds, for feeding their young, inflicting no damage to the sound buds, and not much, if any, to the leaves. As regards aphides and Apple suckers, the sparrows usually tear the trusses of blossom to pieces in order to get at the insects, and the remedy as effected by sparrows is as bad as the disease.

It has been said that sparrows pull Apple blossom to pieces or squeeze the buds with their bills to abstract the nectar or juice. On this point we have no experience that would justify conviction, though why the sparrows make onslaught on the expanding or expanded flowers in the absence of any discernible insect pests is unaccountable upon other grounds than the craving for such sweetness. Chaffinches are also said to act in a similar manner to sparrows in squeezing the blossoms of fruit trees to extract the honey in them. On this point we must say that we have no experience to admit of condemnation. They bring up their young almost entirely on insect food. The goldfinch may be placed in the same category as the chaffinch in the matter of injury or benefit in respect of Apple and other fruit-tree blossom, as it is a seed eater, yet rearing its young on soft food, such as aphides, small caterpillars, and the like grubs.

Lastly, mention in the matter of blossom buds may be made of the tits, or titmice. The blue, or billybiter, has never given us any trouble, nor indeed any of the "tits." But in some cases the blue tit pulls half-expanded Apple and Pear blossoms to pieces, apparently searching for and feeding on eggs or insects. These are almost inseparable from attack by tits on the blossom buds, and is a different case altogether from assault by house sparrows and bullfinches, therefore we conclude that the damage to the blossom buds submitted by "R. A. C." has been done by one or other of these birds.

The real remedy for either bullfinches or house sparrows is decimation. The former are incompatible with the fruit-growing industry, and the latter with the success of the garden, allotment, small holding, or farm. In great towns and manufacturing centres, as well as about homesteads, no greater scavenger than the sparrow exists.—T. R.

Compounds (Poisonous) for Horticultural and Agricultural Purposes.

The nurserymen should now bestir themselves and approach their members of Parliament and obtain support to Clause 2 of the Poisons and Pharmacy Bill when it reaches the House of Commons. The final issue between the Traders in Poisons Society and the chemists' monopoly is fast approaching, and every effort should be made to secure a victory for fair trade. The Bill has this Session passed its second reading in the House of Lords, and Clause 2 (which will make it lawful for nurserymen, florists, and agricultural agents to stock and retail insecticides, weed killers, sheep dips, &c.), has been recommended by a Joint Committee to go forward. It is anticipated that the Bill will reach the House of Commons, from the House of Lords, within the next few weeks, and it is most important that support for the Bill should be obtained at once by the horticultural trade by writing to their members of Parliament, claiming support of Clause 2, as the chemists are opposing most strenuously, and canvassing members of Parliament. All information as to the way to go to work can be obtained from Mr. T. G. Dobbs, solicitor, Worcester (secretary of the Traders in Poisons Society). In the interest of horticulture, and for the convenience of the gardening public, I trust that you will insert this letter in your next issue.—G. H. RICHARDS.

Gardening as an Employment for Criminal Lunatics, Prisoners, and Convicts.*

After the abolition of transportation to the Australian colonies, the question of what was to be done with the criminal population, once the dumping ground for our moral rubbish was closed to the old country, became a perplexing question for the home authorities. The old war hulks which were used as places of detention at Portsmouth and other naval dockyards were gradually abandoned; and in their stead large prisons were erected at Chatham, Portsmouth, and Portland. These were called Public Works prisons. At Chatham and Portsmouth the convicts were employed in the construction of naval docks and ports of defence. At Portland convicts were occupied in the construction of an immense breakwater to make a safe anchorage for the Channel Fleet, similar to what the Admiralty, with the help of Scottish convict labour, have been so slowly making headway with for some years at Peterhead. In addition to those prisons, Pentonville and Millbank were long used as places of confinement, and at these the inmates were engaged in making coir doormats, teasing oakum, weaving cloth, and making clothing for prisoners' use. Dartmoor convict prison, in the principality of Cornwall, occupies the site of the old buildings used for the French prisoners of war during our Napoleonic campaigns, and is located on ground of which the heir to the throne is the superior. Here those incarcerated are employed in the granite quarries on the moor on which the prison is placed, and in the tillage of the ungenial soil in a region of clouds and mists. At Parkhurst in the Isle of Wight, and at Woking in Surrey, men whose physical health was not so robust as others passed at these places the time they were sentenced to imprisonment.

This was the state of matters during the latter decades of last century as regards the sane male State criminals, and the system of rigorous confinement remains still much what it was fifty years ago. Female convicts, whose transportation had ceased before that of the males, were located in some of the larger prisons about London, such as Brixton and Millbank, and were chiefly employed in women's work, viz., washing and sewing, spending, in some cases, ten or more years in the same place, possibly in the same cell, varying the monotony with a couple of hours' exercise daily on a circular walk in what was called an airing-yard. A half hour was spent in chapel, but under close supervision. Besides the criminals sentenced to penal servitude, there is a large body of offenders, male and female, sentenced to terms from twenty-four hours up to two years. Until the closing years of the seventh decade of last century, this class was in the custody of the county and city authorities in England, who in some parts, especially in Lancashire and Yorkshire, with the aid of machinery, turned the prisons very much into factories, and by hard-tasking and intelligent handling of the materials at their disposal endeavoured to take the utmost possible out of the labour at their command. The Government authorities, however, succeeded in the command and direction of those local institutions; machinery lost favour, and discipline and security became the catchwords, whilst hard labour lessened the production. Barring any extensive use of machinery, the history of the dealing with short sentences in Scotland has been very much the same as in England prior to and since 1878.

This sums up, rather briefly, the state of productive employment as regards the sane inmates of our prisons. As regards those who have been legally acquitted of the responsibility of their acts on the ground of insanity under the name of criminal lunatics, there has, in Scotland at least, been a very great improvement in the treatment of such unfortunates, and this improvement was very much brought about by the wiser views and kinder methods of dealing with the insane instituted by the Board of Lunacy. There is, luckily, in Scotland only one institution for persons of this class, that attached to the prison at Perth. The inmates of this place are largely composed of men and women who have been charged with one, and in some cases with more than one, capital crime, committed under the influence of hallucination, angry paroxysm, or furious frenzy.

When I first knew this place, nearly fifty years ago, it was hemmed in by high whinstone walls, from which the slate roofs of the adjoining prison village, the trees on a neighbouring hill, and the piece of sky overhead could be seen on the side occupied by the males, whilst what was to be seen from the female side was sufficient to cause a longing for a wider prospect. With the exception of about half a dozen who assisted in the housework and did a little knitting, the days, from week's end to week's end, were spent by the inmates in ceaseless monotony, now and again varied by the relapse of some poor creature into a state of delirium. Few left this place (it only covered about an acre of ground for about 40 to 50 inmates), and there they remained until death struck off the shackles from both mind

and body. For many years now, however, prisoners of this class have been located in a long, airy building, heated by hot water and open fires, have sofas, play games such as draughts, cards, and dominoes, with pianos to accompany an occasional dance, as in any well-regulated asylum. Attached to the house there is a considerable piece of ground, about six acres altogether. The whole of this was trenched and laid out, and is yearly put under crop by the inmates under the direction of the officials. In front are the cultivated slopes of Kinnoull Hill, with Bellwood, long the home of old Mr. Turnbull. Besides, there are clusters of villa residences, looking out to the west as the sun goes down. To the south are the Pine-clad summits of Moncrieff and Craige Hills, whilst the neighbouring railways and the occasional passage of shipping up and down the river at high tide give animation and cheerfulness to the scene.

The beneficial results of the change from a cramped, confined place to a larger area where there is a wider prospect, more atmosphere, and paradisaical employment, soon told beneficially on the mental health of the inmates. Many recovered so far from their insanity that they were able to be set at large to earn their living under the care of some guardian or friend. There have been occasional relapses and recommitments, but so carefully guarded have those liberated on trust been, that I have never known of any one of them committing a criminal offence whilst at liberty, and there was one case where a male and female when at liberty entered the bonds of holy matrimony, and remained united until death did them part. The ground is nearly all devoted to kitchen-garden purposes, and furnishes enough of some articles, not only to supply the prison and asylum, but to supply what is needed for a considerable part of the year at adjacent prisons as well. The inmates take a keen interest in the work of the garden—more than one of them was a professional gardener—no dishonour to the class—and gave many useful tips to the official who had charge. Before the advent of a change of rulers I recollect a patch of Rhubarb, not over 30 yards square, under the stimulating power of the house sewage realising £2. Unfortunately for the use of sewage, the sluice which was put on the outflow drain was removed under the suspicion that it was the cause of some cases of cholera. This latter act greatly disgusted my good friend, the gardener official, whose monster Drumhead Cabbages and Savoys, and Bob Ridley and James Grieve Dahlias, dwindled in size from what they once had been.

The good effects of outdoor labour of a normal kind in allaying nervous irritation and cultivating the return to a healthy state of body and mind are too well established by experience to be gainsaid. A good example of this treatment was afforded to me when visiting the criminal lunatic asylum at Broadmoor, where a homicidal, Glasgow, would-be regicide, who had travelled up from Scotland to London in order to kill the late Queen, was found on a sunny forenoon within an iron pallisade, all oblivious of his surroundings, absorbed in the culture of his flowers. A great deal is to be said for the sane employment of the insane. Broadmoor is situated in a sandy plain in Berkshire, amidst a forest of Scots Pine. Here, at the time of my visit, male inmates did a lot of gardening, and the females were employed in an up-to-date laundry, with wringers and washing machines driven by belting from overhead pulleys. The rain water was conserved, and the soapuds and sewage were conveyed by gravitation from the establishment to fertilise the waste of sand which readily absorbed the nuisance.

Occasionally accidents will occur in the granting of freedom to lunatics at ordinary employments, but such, I believe, are less numerous than those which happen where every ordinary precaution is adopted. Dr. Browne, one of the first Scottish Lunacy Commissioners, used to tell that when visiting the cook-house by himself in Crichton Asylum, Dumfries, he was invited by the cook lunatic to get into the boiling copper. Taking the man at his word, he suggested that he had better go and divest himself of his clothing first. The ruse put the lunatic off his guard, the door was gained, locked, and the cook was at once changed and removed to another part of the house. The matter, however, particularly before us is the outdoor employment as a curative agent in cases of insanity, and though the financial results are not to be overlooked, yet the gain is much more than any product from farm or garden can be when a number of lunatics can be taken off the rates, and be able to provide for their own maintenance outside, and that of their dependents.

The Scottish Lunacy Commissioners in the report for 1905-6 in the case of Stirling District Asylum say, "The small proportion of men employed at healthy outdoor work, and the inadequate amount of land possessed by the asylum for that purpose, have been repeatedly pointed out. It is therefore urgently recommended that no opportunity be lost of leasing or acquiring additional land. The value of outdoor labour as a therapeutic agent in the treatment of patients cannot be over-estimated." All through their report for 1905-6 the Lunacy Commissioners bear testimony to the good effects of outdoor labour in farm and garden to those suffering from mental disease. In this connection the Commissioners say in the case

* A paper read by Mr. James Moncur, Colinton, at the monthly meeting of the Scottish Horticultural Association, August 6th, 1907.

of Murthly Asylum, "It is recorded with hearty approval that the Board has taken a lease of the farm of Broompark, containing ninety-five acres, and adjacent to the asylum. It is impossible to estimate too highly the value and advantages land represents in the treatment of the patients. The ample and active outdoor work which it affords improves their bodily and often their mental health, and promotes their contentment. The free labour of the patients invariably renders an asylum farm profitable."

Out of 117 men engaged in various forms of labour, fifty-seven were employed on the farm, garden, and grounds at the Banff District Asylum. This asylum is managed by a non-professional, and has no resident physician, yet it still continues to maintain its pre-eminence, as it was the first to develop it in a large measure, in the employment of the insane in the tillage of the soil. At this institution about 40 per cent. of the men

Stove Foliage Plants.

The gardening journals of to-day devote but scanty attention to "stove and greenhouse plants." Yet when one considers the long bleak winters, and the protracted dreariness and general chilliness of the typical English spring, one cannot but think that the indoor garden as represented by the stove, the fernery, or the warm greenhouse, receives much less than its due share of notice.

Quite one of the leading features at each succeeding Temple Show is Messrs. James Veitch's (of King's Road, Chelsea), foliage group, a representation of which we are privileged to reproduce. Every plant is a thorough model—developed to the highest pitch. The group, too, is not "jammed together," as



Messrs. Veitch's Group of Foliage Plants at the Temple.

are employed in farm and garden work, which is not only beneficial to them, but remunerative to the ratepayers. So much so is this the case that the profit from this class of labour enables the Board to make the rate for maintenance the lowest in Scotland, namely £19 13s. 1d. per head, as compared with £39 7s. 11d. at Aberdeen, and £37 9s. 11d. at Edinburgh. The cost per head for salaries and wages at Banff Asylum is £2 5s. 8d. At Aberdeen it is £8 16s. 9d., at Edinburgh £11 16s. 8d. These figures are not got to the detriment of the patients, for Banff has the highest percentage of recoveries on the numbers of male and female admissions, and the lowest percentage of deaths on the average number of patients.

Reverting, in the matter of finance, to the cost per head of the criminal lunatics at Perth, as compared with that of the Banff District Asylum, it is found that the gross cost per head for 1905 of the criminal lunatics and inebriates who are slumped together was £53 10s. 3d. for 1905, against £22 6s. 9d. for lunatics at Banff. The cost per head for salaries and wages at Perth was £31 16s. 5d. per head against £5 15s. 8d. at Banff.

(To be concluded.)

the saying is, but height and depth, richness of colour, and range of variety are all striven for, and with excellent results. We make bold to say that if the truly wonderful colours of the Caladiums are taken into account, with the massive grandeur of the felt-like, velvety *Anthurium crystallinum*; the tortuous coils of amber and gold and orange-red in *Croton Prince of Wales*; the maculated variety in the *Nepenthes*; the spiry grace of *Alpinia Sanderiana*, or of the resplendently plumose forms of the newer *Nephrolepis* (among ferns), not to mention a host of other things—if we consider a group of plants of this character, is it not equal to anything in the whole domain of horticulture in point of effect? Undoubtedly it is. *Heliconia illustris rubricaulis* is another notable plant; and good Caladiums comprise *Madame J. Box*, *Guil Mor*, *Raymond Lemoine*, *The Mikado*, and *Sir Henry Irving*. Lastly may be mentioned *Medanilla magnifica* (as a stove flowering plant); *Aralia Veitchii gracillima*, *A. Chabrieri*; *Alcassia Sanderiana*, *Leea amabilis splendens*, *Panax Victorise*, *Paullinia thalictrofolia*, *Phrynium variegatum*, *Reidia glaucescens*, with *Phyllanthuses*, *Bertolonias*, *Pipers*, *Fittonias*, and *Tradescantias*.

Spraying Potatoes.

The object of spraying is to prevent, or at least check, the spread of the Potato disease. The fungus which causes the Potato disease belongs to the family of Fungi designated *Peronosporae*, and is recognised specifically as *Phytophthora infestans*. It attacks the Potato plants by means of conidia or spores, which are produced by plants already affected by the disease, which goes over with the seed or "sets" as latent mycelium. This grows with the Potato vegetation, ascends the stem or stems in a semi-symbiotic manner, and in the leaves forms the mycelia from which are pushed the conidiophores through the stomata. From these centres of infection (which always comes from infected tubers, no resting spores of the fungus being known) the spores are conveyed by various natural agents, such as wind, insects, birds, and animals, also men, to the healthy plants. The conidia or spores thus dispersed, differentiate, each forming what is known as swarm or zoospores, which are provided with cilia or hairs, so that they can move in a dewdrop or rain drop and find a billet suitable for resting and germination. Each zoospore pushes a germinal tube, and enters the tissue of the Potato plant, or even on the young tubers near the surface. Once inside, the germ-tube ramifies the tissues by branching, and on the surface of these vegetative centres appear the brown spots so characteristic of the disease. On the leaf structure and the underside appear congeries, or groups, of white silky threads, from which spores are rapidly generated and distributed by the wind or other agencies, to infect other Potato plants. It is therefore most important to prevent, if possible, the spores from germinating. This is sought to be effected by spraying with Bordeaux mixture.

The numerous experiments carried out in Great Britain and Ireland, and in many foreign countries in recent years make it clear that the treatment of the plants with compositions of sulphate of copper and lime has been employed with satisfactory results. The treatment, however, has not an unbroken record of success, which is not to be wondered at, as the seasons vary, and with these the virulence or otherwise of the epidemic. In very dry summers there is, as a rule, but little disease. This is probably due to the dry conditions of the atmosphere dis-favouring the production and germination of the spores, and also to the heat inducing a higher resisting power in the Potato plant. On the other hand, the fungus generates and causes most injury in warm, showery weather, especially after electrical disturbances, and make its appearance towards the end of June. From that date to the beginning of August it appears. In a night temperature of 45deg to 50deg, and a day temperature ranging between 55deg and 60deg, the fungus makes rapid progress. The weather, therefore, is an important factor in respect of the prevalence or otherwise of the Potato murrain. Repressive measures consist in the very simple treatment with sulphate of copper compositions, and upon the whole the treatment is justified by results, inasmuch as plants so treated offer much more resistance to the attacks of the Potato fungus than plants not so dressed. There is also evidence that when Potato plants have been attacked by the fungus, the treatment with sulphate of copper compositions has proved remedial in a considerable degree, and has in many cases arrested the progress of the disease.

The consensus of experiences points to the imprudence of waiting until the disease has appeared before the sulphate of copper compositions are applied. The fungus spreads with such rapidity in favourable circumstances that the cultivators have not time to organise and carry out defensive measures. Treatment, therefore, should be adopted as a means of prevention.

Bordeaux mixture is a compound of sulphate of copper, lime, and water. There are various compositions, but the one most commonly adopted consists of:—

20lbs. of sulphate of copper.
10lbs. of lime.
100 gallons of water.

This has been found strong enough for all purposes, and does not injure the foliage if it is properly and evenly distributed, and not applied to very young plants. For a first spraying it has been advised to use a weaker mixture, especially for Potato plants whose leaves are young and tender, as 15lb of sulphate of copper, 7½lb of lime, and 100 gallons of water. This, however, has not been found so effective as the first mentioned for treating Potato plants whose leafage is coarse.

The preparation of the composition or Bordeaux mixture is important. The sulphate of copper must be pure, avoiding the cheap article containing a large percentage of sulphate of iron, as this diminishes the action of the sulphate of copper and makes the mixture of a dirty green colour. The lime must be of the best quality, well burnt and unslaked. The sulphate of copper, powdered or pounded, should be dissolved in cold water in a wooden vessel, placing the sulphate in a coarse bag or sacking,

and letting this hang over the side of the vessel in the water. The lime must be slaked with cold water in a separate vessel, and the mixture, when cold, poured into the vessel containing the sulphate of copper, and passed through a fine sieve to keep back particles likely to clog the nozzle of the spraying machine. The whole should then be well stirred, and a bright blue liquid is the result, if properly made.

Such is ordinary Bordeaux mixture, but Mr. Spencer Pickering gave a formula for preparing Bordeaux mixture with lime water in the *Journal of Horticulture*, August 29, 1907, as follows:—"Take 6lb 5oz of sulphate of copper, dissolve in 2 or 3 gallons of water, best done by suspending in a wooden tub (zinc or iron not to be used). Take 2lb or 3lb of lime, quite fresh, slake it with a little water, and put into a tub with about 120 gallons of soft water; stir occasionally and leave to settle. If left overnight the tub should be covered. Draw off 86 gallons of clear lime water and mix with the copper sulphate solution. If 'normal' is wanted, make up to 100 gallons. If less strength, more lime water to be added, and if greater strength, some of the clear liquid may be run off after being left to settle. The proper proportions are 107 parts of lime water to each pound of sulphate of copper, or 134oz to each ounce. Test by placing a little water in a white saucer with a little solution of potassium ferrocyanide added, and place into this a few drops of the clear liquid obtained by allowing the Bordeaux mixture to settle. If any brown colour appears, copper sulphate is still present, and more lime must be added till the liquid, on testing, shows no sign of colour whatever. Agitate during use. A weaker Bordeaux mixture consists of 92 gallons of lime water instead of 86 gallons, and has only four-fifths of the efficiency of the other: recommended by Prof. Cavazza in 1886, and used in Italy ever since with excellent results."

DISTRIBUTING. This is effected by knapsack machines, such as the "Eclair" (advertised in these columns), holding about three gallons. A man can spray from one-third to half an acre per day with a machine of this kind. The quantity of dressing applied usually varies between 110 and 150 gallons per acre. Care must be taken to ensure regular distribution by means of the fine spray nozzles attached to the machines, which can easily be adjusted in different directions to cover evenly the upper and under surfaces of the leaves. Opinion, however, is sharply divided as to the necessity of spraying the under surfaces of the leaves, but it is certain that the disease is first generated there, and also the "fruits" produced from that side, therefore it would seem to be even more important to apply preventive measures to the under surface of the foliage than to the upper surface. Distribution is materially assisted by strainers fitted into the machines, and by keeping the composition constantly stirred. If the dressing has been regularly and properly distributed the leaves above and below should, when dry, be covered with bright blue spots.

TIME OF APPLICATION. The secret of success is prevention. This seems practically impossible unless means are devised to destroy the latent mycelium of the fungus in the affected "sets." But by prevention we mean a protective coating of Bordeaux mixture on the Potato foliage by the time the first fruits of the parasite are produced. In the south of England the spores are rarely produced before the 15th of June, and not generally till Midsummer. The first spraying should be made at about the dates given. A second application a month later, which in most cases suffices to carry the plants safely to the end of the season, though in the case of a late growth a third application in the third week in August would be advisable, and even necessary.

Early Potatoes that are lifted at the close of June or early in July may not need spraying, but any that are still growing after the end of June should be sprayed, both as a preventive for themselves and also as repressive of any spores produced and likely to act as sources of infection to second early and late crops in the vicinity, or even distantly for that matter. The early sprayings need only be over the plants, so as to coat the upper surface of the leaves, but where the disease has started and spores are being produced, a thorough dressing to the under and upper surfaces is advisable. The cost of the treatment with the 2 per cent. of sulphate of copper composition (that first named), varies from 8s. 6d. to 11s. per acre.

Many allotment holders boggle at the outlay for spraying. The cost of the spraying machine is a serious item, but why they do not co-operate, and have the Potato plots sprayed at a given price per acre, by an expert, or under his supervision, is matter for wonder. The cost would not be preclusive on the co-operative principle, whereas individually the outlay for equipment would be unjustifiable. Nevertheless, treatment by means of a syringe with a spraying nozzle, such as the "Abol," advertised in the *Journal of Horticulture*, though more labour making than by a knapsack sprayer, would well repay the trouble and outlay.—G. ABBEY.

Notices of Books.

COLOUR IN THE FLOWER GARDEN, by Gertrude Jekyll. London: "Country Life," Ltd., 20, Tavistock Street, Covent Garden, W.C. Price 12s. 6d.

This is the latest of Miss Jekyll's books. It is devoted to the arrangement of hardy plants with a view to their best effectiveness in point of colour and of form. From it one can learn much that is useful.

Every year gardening is being apprehended more and more as a fine art. There are numerous good gardeners of both sexes, whose faculty for reproducing what is excellent in the artistic sense, is teaching the rank and file. But the new school, or a section of it, seem to us to try to carry their colour schemes too far. Borders all of white, or of yellow, or pink, or grey, can never equal the old-fashioned mixed borders with their bold splashes of a hundred different hues. Of course, we shall be laughed at by those who follow the fashion of the moment, but we do not mind that. We are not alone in our love for the old-time mixtures, so long as they are good mixtures, and compounded intelligently.

But we started off to review, or at least to briefly notice some of the features of Miss Jekyll's book. Her scheme, in practice, is "to place every plant or group of plants with such thoughtful care and definite intention that they shall form part of an harmonious whole; and that successive portions, or in some cases even single details, shall show a series of picture." That is the text and the foundation upon which the authoress builds her book. As she passes the seasons in review she tells us what, from closest study and long experience, she has found to please her best. The habits and characters of the plants are suitably discussed, and hints are dropped as to their individual likes or dislikes. The book makes easy reading.

Herbaceous plants of rather large growth with fine foliage in April and May are not many, but Miss Jekyll mentions *Veratrum nigrum*, *Myrrhis odorata*, and the newer *Euphorbia Wulfenii*. Many gardeners, we are afraid, take but little trouble to choose special subjects to cover their borders early in the year. The *Myrrhis* just mentioned is said to be highly useful, and can be cut right down early in June after it has flowered, and will spring up again, or fend for itself among the new growth of midsummer.

Miss Jekyll plants her borders in long narrow drifts of the different kinds of plants. She found that this was not only better pictorially, but the thin attenuated planting does not leave an unsightly empty space when the flowers are done and the leaves have perhaps died down.

The chapter dealing with the present season, just when the blaze of early spring flowers has passed away, leaving rather a duller tone in the borders, is of more than passing interest. There should be no occasion for dullness, with Flag Irises, dwarf Phloxes, Pæonies, Lupines, Oriental Poppies, Camassias, Woodruff, *Corydalis ochroleuca*, London Pride, St. Bruno's Lily, Columbines, Violas, Peach-leaved Campanulas, the earlier Roses, *Clematis montana*, and other things of diverse character. We gather that Miss Jekyll has a scattered garden, and the component parts of it are given over to "seasonal" displays, that is to say, one part is truly a spring garden; another is a June garden, and so on. We like the idea of the chain of little formal gardens leading into each other from between tall hedges, each compartment (forming a garden in itself) being devoted to one colour. Thus there are the "special colour" gardens given over to orange, grey, gold, blue, and green respectively, each colour representing a compartment. But while the prevailing colour may be blue or grey or gold, Miss Jekyll does not tie herself down to have everything of these shades, and these only. "For instance, a blue garden, for beauty's sake, may be hungering for a group of white Lilies, or something of palest lemon-yellow, but it is not allowed to have it because it is called the blue garden. I see no sense in this." So writes the authoress. As to what subjects to employ, the following are mentioned in the grey garden: *Gypsophila*, *Echinops*, pink Hollyhocks, *Heliotrope*, and silver Thistle. In the gold garden are *Oenothera lamarckiana*, *Verbascum olympicum*, *V. phomoides*, Spanish Broom, gold-leaved Hollies, yellow-flowered annuals, *Chrysanthemum coronarium*, African Marigolds—the orange and lemon and primrose coloured. In the blue garden we have *Agathaea*, *Eryngium giganteum*, *Delphinium belladonna*,

Anchusa, Maize, white Foxgloves, *Lilium longiflorum*, *Salvia patens*, Rue, and *Spiraea Aruncus*.

The book is highly suggestive, and should be an excellent companion to every flower gardener. It is admirably illustrated with diagrams and half-tone photographic reproductions.

Antirrhinums.

It is as a pot subject that we would consider the Antirrhinum now. "S." drew attention to this method of utilising the Snapdragons in his notes last week. The shelves of a cool greenhouse, or an open-air pit, from which frost can



A pot-grown Antirrhinum.

be excluded, may be made to serve for them in the winter. They would seem to resent any attempt to force them unduly out of their normal pace, and when it is remembered that other seasonable flowers demand all available stage space, there is admittedly no gain or purpose in hurrying them. Of course, the flowering season can to some degree be governed by the time of sowing the seeds. Florists, who have specialised in Snapdragons, have given thought to the production of large individual blooms, combined with a dwarf sturdy habit, and for pot culture this is highly desirable. The familiar Tom Thumb varieties, which grow only to a height of 6in, or even less outdoors, may easily exceed 12in when grown under glass, and are thereby so much improved in a decorative sense. There is no loss in the size of bloom: rather there is a gain. Had they the fragrance of the Stock, Cyclamen, Freesia, or Wallflower, then, indeed, the Antirrhinum would be king of all the conservatory. In this, however, the Antirrhinum fails, and there does not seem much hope of this attribute being added. Pots ranging in size from 4in to 6in are those commonly employed. The first restricts the size of plant, the other adds material bulk.

Cyclamens and Primulas for Seed.

All habitués of the Royal Horticultural Society's shows can speak personally of the high excellence of the Cyclamens and Primulas as grown by the St. George's Nursery Co., Harlington. Some notes by our correspondent, Mr. S. Castle, lately appeared in "The American Florist," and we reprint the following:—

The whole of the cross-breeding is carried out upon a thorough and systematic basis, all crosses being recorded and noted, and the utmost care being taken to prevent any error. The trade of the firm in ordinary market plants enables it to profitably dispose of any plants not quite up to the high standard needed for their seed bearers. Only the principal tiers or whorls of flowers are fertilised, thus ensuring fine flowers for the purpose. Giant White, Salmon Pink, Crimson King, and Royal Purple being the varieties most grown.

Cyclamens are the firm's principal specialty, and the experience of the growers and the firm, which is of over forty years' standing, is sufficient guarantee that not one out of the 20,000 or so plants that are grown for seed will be unhealthy or of poor type. There are just about 20,000 plants in the house of seedlings, and each one of these has to be carefully scrutinised before being used either as a seed or pollen bearer. All others are weeded out and sold as indicated above. Good, well marked foliage, flowers of good size and clear, bright colour, with stiff stems are the characteristics looked for in the parents of all crosses, and though the amount of seed produced under this strict régime is necessarily much less than would be the case were looser methods practised, the quality of that saved is of the highest.

Self-fertilisation is guarded against by pollenising the flowers on each plant early with pollen from another one of the same variety, and by this means both vigour and truth to name are insured as far as this is humanly possible. For the mixed varieties the same care is taken to avoid self-fertilisation, but here the plants are crossed, not indiscriminately exactly, but crosses are made between varieties of good quality and of characteristics which it is desirable to perpetuate. In the illustration showing the house of Cyclamens in flower for seedling there would be many more flowers showing, but for the reason that most of the stems are bearing seed pods, and these bend the stems over by their weight. It is a true picture of the best methods of producing seeds of the highest grade.

Among the varieties of Cyclamens, that named Ouroun takes a very high position, being well known among Covent Garden salesmen. It is an immense type of flower, after the style of Salmon Queen, and is the result of many years of careful selection and re-selection. Seed of it, so far, is scarce, and comparatively high in price, owing to the rigid selection of the parent plants. Picturatum, Grandiflora alba, Mont Blanc, Sunray, Prince of Wales, Princess of Wales, Duke of Connaught, Rosy Morn, Brilliant, and Crimson King are other leaders. All are of the true giganteum strain, and most of them have been awarded certificates by the Royal Horticultural or Royal Botanic Societies.

Sweet Peas.*

(Concluded from page 465.)

CULTIVATION.

To grow the Sweet Pea to perfection under glass you must have a greenhouse suitable for the purpose. It should be at least 8ft high on the sides, 4½ft being glass. Mine are 7ft, and I find the side rows strike the glass when the vines are about half grown, thereby giving me half a crop. My centre rows are about right, they are 12ft to 15ft high. The higher they grow the more and better flowers you get. We plant the rows 5ft apart, and in a line with the supports of the greenhouse. The uprights are 12ft apart, so in supporting we run twine from one support to the other on each side of the row. This I have found the best method of supporting. I have tried wire netting. This is only a nuisance, as the vines do not cling to the wire, which causes just as much tying as if it were not there. It often causes injury to the vines, as a Sweet Pea stretches many times more than a foot in developing; if held back by anything in growing the growth looks like a spiral spring, and picking the flowers is made very difficult. The side rows are planted 5ft from the sides of the house, and all the heating pipes are on the sides. They are very susceptible to red spider, and, as they will not stand syringing, the further you can afford economically to have them from the pipes the better. We have not changed the soil in the houses since they were built four or five years ago, and we find the vines are getting more vigorous each year. In the same soil a crop of Tenatoes and Violets is harvested each year. The soil was originally

18in deep, but by the application of manure each year the depth is now 2½ft. The Tomato crop is on the wane the middle of August. When these are cleaned out we trench the house over as deep as the soil, bringing the bottom soil to the surface. In the bottom of the trench we put 3in of decomposed cow manure; 1ft from the surface we put on 3in more of the same material. The house is allowed to remain in this state until nearly time for sowing the seed. The soil is then usually very dry, so we ram it down enough to cling together, while the house gets another fork over. This time we go down 1ft, and mix the top layer of manure with the surface soil. We then make the surface as near level as possible, and thoroughly water the soil, giving enough to penetrate the entire mass with a strong dose of liquid horse manure. In about three days, depending on the weather, the house will be ready to plant.

SOWING THE SEED.

We sow the seeds about 1½in apart. We make the drills 1in deep, and do not allow more than 1in of soil over them. We do not pull any more soil towards the root as is often recommended, but let it remain level. If more soil is pulled around the base of the plant, stem rot is sure to follow. We do not water the plants again until they are up about 3in. Of course, they can be grown on a bench with a few inches of soil, but the results will be just what you make them: a weak growth and a crop of short-stemmed flowers. These soon play out, as there is not enough soil or food for the vines to live on. They may be made to flower any time you wish by increasing the temperature, but the best results are obtained by growing at a temperature just above freezing until the buds can be felt in the crowns of the plants. Then the temperature should be gradually increased, say 1deg a night, until you reach 48deg. This, I think, is about right, although in midwinter I think they move a little better at 50deg.

As the days lengthen a little cooler temperature seems to suit better. A rise of 10deg to 15deg should be given during the day in sunny weather. In spells of cloudy weather 55deg is high enough during the day. If a high temperature is given in dark weather the growth gets soft and wilts when the sun comes out bright again. While the plants are young they should be regularly fumigated so that there will not be a sign of lice when they commence to flower. If they are clean at this stage it will not be necessary to fumigate while they are in bloom. It is impossible to sell Sweet Peas that smell of tobacco. Tobacco also bleaches the flowers of some varieties, and makes them look like some other variety. We sometimes hear of trouble from buds dropping. This is more the case in midwinter than at any other time, and is caused by too cool a temperature or a sudden chill, or too much water. Should a house be allowed to go near the freezing point in midwinter the wholesale dropping of buds will be sure to follow. Diseases have not shown themselves with us. Sometimes we see a plant that looks stunted with yellow streaks in the foliage. This we have attributed to too rich soil, or the roots striking manure that was not thoroughly decomposed. They take an abundance of water in the flowering season, but require very little in the early stages of growth. They should be provided with proper drainage so that if too much water is given it will settle into the subsoil, and no bad results will follow.

TIME OF FLOWERING.

I find in experimenting with the newer varieties of Peas that some come into bloom ahead of the others. Take re-selected Earliest of All and Watchung, for instance. These two will come into flower fully two weeks ahead of the other varieties, and for early purposes they are a fine pair to grow together. They are both black seeded. These will flower in October if sown in August, and will be in full crop for Thanksgiving. For a later crop I prefer Christmas Pink and Florence Denzer. These are the peers among Sweet Peas at the present time. Denzer is two weeks later than Christmas Pink, and is white seeded. It should be sown in sand and transplanted into flowering quarters at the time the seed of Christmas Pink is sown. They will then commence to flower together. There is now quite a demand for some of the fancy varieties. These sell best in the spring, but will soon get into demand all winter. They are something new, and the people are a little sceptical about buying them. They will, however, find a ready sale once there is enough of them around to attract attention. Among the new varieties I think Mrs. Charles Totty the best. It is the same shade as Countess of Radnor, and is a very strong grower, having 2ft stems. W. W. Smalley comes next. This is a shade of satin pink. It is a fine seller, but a trifle short in stem. Mrs. Alexander Wallace is a good one. The colour is dark lavender, and sells well. Mrs. Wm. Sim sells well; the colour is salmon pink. It produces very long stems, many being 2ft in length. The improved Mrs. F. Dolansky I have great hopes in. It is the colour of an Enchantress Carnation. A limited quantity of Le Marquis and Christmas Captain can be sold. Both are purple shades. The same may be said of Blue Bird, Mrs. Eddy Wild, deep crimson, but the flowers are small in size and the stems rather short.

* A paper read by Wm. Sim, Cliftondale, Lynn, Mass., before the Gardeners' and Florists' Club of Boston, Mass., U.S.A., April 21.

A WARNING.

To those who are contemplating growing Sweet Peas the one important thing is to have the right seed. You may get your house in the best possible condition, yet, without the right seed, failure is sure to follow. Many seedsmen are selling seed of the early varieties which is not true. Very few seedsmen know that there is any difference between the two, and substitute with the late varieties. Not a winter passes but what some poor grower gets hit hard in this way. He sows his seeds. They start fine and grow well, but he gets no flowers. He is paying high for his experience. I will tell you an experience of my own to show what harm can be done in not knowing what you are planting: A few years ago I planted a house with Earliest of All. I bought my seed from a reputable seed house. This turned out to be the best house of Peas I had ever sown.

The seed was all true, and to be sure of seed for the following year, I bought seed again from this same firm with the assurance that it was the same as I had bought the preceding August. My intentions were to build another greenhouse and raise two crops, one for early, the other for late cutting. The house was built and put into the best possible condition. The seed was sown in August, and all came up in fine shape. They grew lovely, but somehow or other they did not look right to me. The vines looked too heavy and strong. I, however, did not like to disturb them, and I let them grow. The other house was planted the middle of November after a crop of midseason Chrysanthemums. I procured the seed for this house from another source. The beginning of March they commenced to bloom, and by April 1, \$2,000 worth of Peas had been sold from this house. The other house did not commence to flower at the beginning of April. The vines had reached the glass and were pulled down several times. It was then deemed advisable to clear the house out and consign the vines to the rubbish heap. This was done after keeping the house, which was 30ft by 360ft, at a temperature of 50deg all winter long. I lost \$6,000, this being based on the product sold from a house of similar size the year before. I mention this to show the seedsman what a great injury can be done by selling something that is not true to name, and to the grower to be doubly sure before he risks too much space in something he is in doubt about. The safest way is to procure your seed in advance and test it yourself. Sow some of it, and if the plants grow strong and stocky and bush round the base of the plant you have the wrong sort for winter flowering; but if the plant runs up to a single stem and does not bush you have the right kind. The early types very seldom break near the ground. The one shoot forms practically the whole plant. Some side shoots are made, but these never attain the strength of the main shoot.

Market Gardening Notes.

MARKET IVY-LEAF GERANIUMS.

Only those actually engaged in the trade have the least idea of the extensive sales of the above, which take place year by year. There are several good growers, and second to none is the old-established firm of H. Williams and Sons, Fortis Green, East Finchley. This firm was the first to market in 60's. Certainly they have done very much in popularising this branch of the trade. "Have you seen our last new house for 60's?" was the question put to me in the market at the week end. I had not, but quickly availed myself of their offer. This house, 165ft long by 14ft, is now filled with 10,000 Madame Crousse. This silvery pink variety is the most useful for hanging baskets, as also for trailing. Another house of the same variety in 48's (100ft by 14ft) holds 6,000. Galilee, a newer, soft rosy-pink, very large, of good form, with grand round trusses, good habit, free bloomer, was also growing in about equal quantities. Souv. de Chas. Turner, now well known, has gigantic trusses and pips, deep pink shade, feathered maroon in upper petals. All are staked, putting one in mind of a regiment of soldiers, but every plant was perfect, and daily improving with the light and sun.

CHRYSANTHEMUM PLANTING.

This is being done by our market growers, but the season is late. At the same time it is more than possible that the present planted will overgrow those put out earlier. A good grower informed me that he covered most of his with pots in the snowy weather, and believes they have taken no harm.

CARNATION MRS. BURNETT.

New Carnations, whether of American or home raising, are always touched very gently by the real grower for market. I was pleased, therefore, to see Mr. J. Camfferman, of Whetstone, one of the best Covent Garden men, having a very large supply in 48's of the Guernsey raised Mrs. H. Burnett. A better treat was, however, in store for me when I entered one of his last new spans, a full house with plants in No. 12 pots, which

are for the autumn and winter cut supply. The grower has great faith in the colour being right for the better class market trade.

MARKET FERNS.

On the stands of J. Hill and Son, of Barrowfield Nurseries, Lower Edmonton, I noted the varieties as below, from 60's to 32's:—*Pteris cretica* major, *P. albo lineata*, *P. Wimsetti*, the newer *P. Wimsetti multiceps*, *P. tremula*, *Adiantum elegans*, *Neprolepis Schottii*, *Aplenium nidus* (special), *A. Hilli*, *Lomaria gibba*, *Cyrtomium falcatum*, *Polypodium aureum*, good; and boxes of mixed ferns—a very special line at 4s. per dozen for 60's.—STEPHEN CASTLE.

Societies.

British Gardeners' Association.

ANNUAL MEETING.

An eager and expectant attendance of members gathered in a room of the Essex Hall, Strand, London, on the evening of the second day of the Temple Show, to discuss business pertaining to the annual meeting. There was a commissioner posted at the door of the hall, and each member had to show his card of membership, and to sign a book upon entering. There was a large meeting, presided over by Mr. Charles Foster, assistant director of the horticultural department of Reading University.

The first business was to read the minutes of the last annual general meeting, which were very full and lengthy. They revived the discussion that arose around the proposed trips to the Continent, and the question of the permanent secretary.

The report for 1907 was then before the meeting. Just before this a member, whose subscription was unpaid, and who therefore could not show "the green card," was refused admittance, according to the law of the occasion.

As the report had been printed in the society's journal, the chairman proposed that it be taken as read. This was agreed to. Following are the main features of the report:

REPORT FOR 1907.

PROGRESS.—During the past year substantial progress has been made in every direction. The membership has steadily increased, subscriptions have been better paid, the "Journal" is now established on a solid basis, and the specially designed certificate will shortly be in the hands of every member. The British Gardeners' Association has now been in existence just over four years, and 1,200 professional gardeners have joined its ranks. Considering the conservative nature of gardeners, the apathy that has prevailed among them for generations, and the reluctance they have hitherto shown to combine for their own welfare, it may be said that the progress of the association is almost phenomenal amongst horticultural organisations. The B.G.A. has induced the gardeners of the United Kingdom to consider the benefits arising from co-operation, and has done much to make them realise that they belong to an ancient and honourable calling, the successful following of which necessitates a large measure of care, knowledge, and skill. Gardeners have now the resources of an organisation at their command which may be drawn upon in case of necessity, and in some cases already, contemplated injustice has been prevented. The executive council, however, is well aware that many excellent gardeners are still apparently reluctant to join the association—some because they think the B.G.A. is "going too fast," and others because they think it is "not going fast enough." If both these groups would summon up sufficient courage to join, they could help far more effectually by working inside for the general welfare than by remaining outside to criticise the labours of others.

THE "JOURNAL."—The experiment of publishing the "Journal" has met with such success that the executive council feels justified in issuing it monthly instead of quarterly. By this means members will be kept in touch with each other regularly, and the "Journal" will form a common link between gardeners in all parts of the kingdom. The executive council is grateful not only to those members who have contributed articles, but also to those who have shown their appreciation of the work done by the practical method of giving donations to the publication fund. Each member should bear in mind that he is a part owner in the B.G.A. "Journal," and that, although it is only a modest little publication at present, it will in time exercise a great beneficial influence throughout the gardening profession in respect to the conditions under which gardeners have to earn their living.

THE CERTIFICATE.—By this time every member of the association is acquainted with the general appearance of the artistic B.G.A. certificate, a reduced facsimile of which appeared in the "Journal," No. 4, page 61. Many copies of the certificate have already been issued to members, and others will be sent out as soon as they can be signed and written. It will

be noticed that the design embraces the national emblems of England, Scotland, Ireland, and Wales, and is intended to represent the fact that the interests of gardeners in all parts of the United Kingdom are identical. The executive council advises members to have the certificate framed and hung in a conspicuous place, so that it may be the means of attracting the attention of gardeners who have not yet joined our national organisation. The executive council hopes that employers will regard the certificate of the British Gardeners' Association as a credential by which the practical gardener can be distinguished from the untrained and unskilled man.

PUBLIC MEETINGS.—During the past year meetings have been held at Newport, Leeds, and Richmond, Surrey, but the results have not been so gratifying as could be wished. The meetings held in London on March 7 and March 21, however, were very successful, and a strong London branch has been formed. An important meeting also took place at Blackburn, Lancs, on April 15, when the secretary delivered an address, and a new branch of the association was formed.

EMPLOYERS AND THE B.G.A.—The executive council again wishes to impress upon the members that the association is in no way antagonistic to employers who look upon gardening as a skilled calling, and who recognise that their gardeners are entitled to reasonable remuneration for their services. It has, however, come to the knowledge of the executive council that some employers place their gardeners on the same footing as unskilled labourers. Under such employers gardeners naturally become deeply discontented, and are only too anxious to move when possible.

EXCHANGE OF SITUATIONS.—Many of the younger members of the association naturally wish to proceed from one garden to another for the sake of gaining experience. To do this usually involves great delay and loss. The executive council therefore invites the co-operation of head gardeners to assist in exchanging young men under them when this course is desired. A list of members wishing to remove will be published under certificate numbers each month in the "Journal" of the association, and the names and addresses can be obtained from the list of members. By adopting this system head gardeners will always be able to secure the services of a B.G.A. member in exchange for another without loss of time or money.

PERMANENT OFFICES AND SECRETARY.—This question has not been overlooked. The executive council, having thoroughly considered the details, is of opinion that the time has not yet come when the association can afford an annual expenditure of £350 to £400 that would be involved by the rent of an office, and adequate remuneration with travelling expenses of a permanent paid secretary. The association now pays nothing for rent of offices, and the executive council is convinced that it would be impossible to have the business transacted on more economical lines than it is at present.

DEATHS.—The executive council regrets having to record the deaths of Mr. Chas. Jordan, I.S.O., supt. of the Central Parks, one of the first members of the executive council; Mr. Alfred Chalice, of Plympton, Devon; Mr. W. Archer, of Sunderland; and Mr E. Perry, of Birmingham.

Owing to the migratory character of the younger men in the association many have failed to send their new addresses and subscriptions to the secretary. A glance at the list of members (published separately) will show the number of members whose addresses are wanted, and the secretary will be greatly obliged for information regarding them.

EXAMINATIONS.—A scheme for a practical and theoretical examination is outlined in the last issue of the society's journal, and the council hopes that it may be found possible to put it into working order during the year. There are no difficulties in regard to holding a written examination, but there are many in connection with a practical one.

Mr. Foster proceeded to comment upon the report in proposing its adoption. The association was started four years ago, and now had 1,300 members enrolled. He thought it would be difficult to find any other horticultural organisation that could show such rapid growth. And it was gaining the sympathy of employers of gardeners; for one of the chief objects of the association was to improve the general education and technical ability of employees. Every month sees an increase of members, there being no less than seventy-five new members last month. (Cheers.) The alteration of the society's journal from a quarterly to a monthly publication, with the reduction in price to one penny per copy, marked a great forward step. The journal was unique in its way. Its pages were open to every member, and he hoped they would avail themselves of the privilege. The institution of the journal had minimised the expenses of other printing, as all notices go through its pages. It acts as a link to the scattered forces throughout the country, and brings the individuals theoreti-

cally into touch with one another. Not least of its advantages was that the subscriptions had been more promptly paid since it was started. Special thanks were due to those members who had voluntarily contributed to the Publication Fund, to the total extent of £24 4s. 2d. Whether it would ever become a weekly publication remained to be seen. This might become necessary in order to deal with examination papers and other educational matters.

Mr. Foster, continuing, alluded to the proposed examination scheme, and said that the fee which was proposed to be levied upon candidates was necessarily light, and would not possibly cover the expenses. The scheme, however, would require further discussion. Then the certificates of membership were being got out, and these would doubtless help to advertise the association more widely. As to the exchanging of situations, it was thought that some means could be embodied in the society's journal whereby head gardeners could find suitable assistants when they sought them. Turning to the finances, he was sorry to know that they were £2 13s. worse off than last year, a statement which, however, the treasurer modified when he pointed out that the secretary's honorarium of £21, voted for 1906, was included in the expenditure of 1907. This occurred through the grant having been made in respect of 1906 at the first council meeting after the last annual meeting.

In conclusion, the chairman said they were adopting a sound progressive policy. There was not a policy of all show, with nothing to fall back upon. They have now a fund of £250. Their secretary, Mr. Wethers, had done a huge amount of hard work—(cheers)—and he was still willing to do more. All the circumstances considered, he thought they were pursuing the proper course, and he, therefore, with pleasure, moved the adoption of the report. Mr. E. F. Hawes, the treasurer, seconded.

Mr. Tunnington asked when the financial year ended. The reply was the 30th of April in each year. Why then, he asked, was the secretary's honorarium included in the present balance sheet? The answer was such as we have already reported.

Another member inquired if the secretary obtained commission upon the number of new members, and what number of members had not paid their subscriptions? The secretary, in reply, directed attention to the pages of the B.G.A. Journal for full information. Seventy-six members had lapsed.

Attention was directed by Mr. Candler to a quotation from "Pearson's Weekly" upon trades union methods, which appears in the current issue of the society's journal. He objected to a quotation of such a nature from a paper of that kind.

Mr. Lewis, member of council, supported this view. He thought there was direct and strong evidence of prejudice against trades unionism on the part of the Publications Committee. The expression of these views was backed by a thunderous applause. Mr. J. Harrison Dick, while complimenting the executive council upon its year's report, drew attention to the deficit of £27 odd on the journal. The expenses in connection with its publication amounted to £87 16s. 4d., and the income was £60 12s. 2d. Ostensibly the charge per copy was one penny; but did all the members pay it? He suggested that the council should draw attention more prominently to the Publication Fund, and urged members to do their part towards supporting what was their own property.

Mr. W. Watson, of Kew, followed; and after commenting upon Mr. Foster's admirable chairmanship, proceeded to say that at the same time he (the speaker) feared Mr. Foster had not read what he called the constitution of the B.G.A.—the original Plea. This was drawn up by a body of able and earnest men—

Mr. Witty: "On a point of order, Mr. Chairman, I hold that this Plea is absolutely dead, and that the discussion of it is not appropriate."

Mr. Frogbrook: "I should like to second and support Mr. Witty's remarks."

The chairman said he was perhaps too lenient, but wished to let everyone have a hearing.

Mr. Lampard, rising, said he thought it was a great pity Mr. Watson, as a member of the council, did not attend the council meetings, and air his views there. Another member pointed out that Mr. Watson was equally responsible with the other members of council for the present report. Mr. T. Winter, another member of council, likewise took exception to Mr. Watson's attitude. It was ungentlemanly and unfair to come here once a year simply to criticise, and unfavourably, the action of the executive. He thought it was uncalled for.

Mr. A. J. Brown, School of Handicrafts, Chertsey, said that as many of those present had to catch a train, and as the discussion was somewhat irregular and aimless, he hoped that less time would be wasted. Mr. Cole thought they should have been provided with an agenda. Mr. Lewis was in favour of reasonable discussion, and hoped Mr. Watson would stick to the report. The latter, in answer, thought he had a

perfect right to discuss the question of policy. His remarks were directed in no captious spirit. The chairman put it to the vote, whether or not the Plea could be resuscitated as matter of comment in this instance. Against the resuscitation there was an overwhelming majority.

Progress was now reported, and the next bone of contention was whether the executive council had acted according to the rules in causing a vote by ballot to be taken for the election of eight new members of council. The result of this discussion was that the present meeting was regarded as ratifying the general ballot. Later in the evening it was suggested that rules 12 and 59 should be made to read more definitely as to the power to exercise the ballot. As the result of the vote, the following gentlemen were elected upon the executive council:—Messrs. Charles Hill, 211 votes; Donald Campbell, 201; T. W. Sanders, F.L.S., 172; — Lampard, 157; T. W. Little, 153; W. C. Modral, 147; C. P. Raffill, 138; and Edw. Skelton, 115.

The election of officers followed the adoption of the report. Mr. E. F. Hawes had been obliged to retire from the treasurer'ship, an office he had filled with honour and credit,

Begonias.

The single and double-flowered varieties of tuberous-rooted Begonias are great favourites. Their cultivation demands skill and care, however, and beginners should not hope to rival the efforts of those who have spent years in specialising in their cultivation. As to the pot culture, Messrs. T. S. Ware, Ltd., of Feltham, in their catalogue give the following advice:—“The tubers should be started from January to April in pots or seed trays. The soil should consist of half loam, half leaf mould, and a good sprinkling of coarse sand. The tubers should not be entirely covered, and water should be sparingly used until they start into growth. When the tubers are well started, pot them in the following soil: two parts turfy loam, one part leaf mould, one part decayed horse manure, with a little coarse sand, all sifted through a half-inch sieve. On no account overpot them. The temperature should be from 60deg to 70deg. The house should be kept moist and shaded from excessive sun. Be careful to give plenty of air when possible,



Messrs. Ware's Begonias
at the Temple Show.

and for whose services special thanks were accorded. Mr. Thos. Winter, superintendent of parks and open spaces, Marylebone, was elected to the vacancy. After further discussion upon the question of the institution of a permanent secretary, Mr. J. Weathers was re-elected by an overwhelming majority. Upon this matter Mr. Brown, of Chertsey, proffered some sound advice. He said that members in the country looked with a keen and scrutinising eye upon all money spent in London. The sum of £50 spent upon clerical help, would, he thought, go a long way, and should meet the present needs. He should like to see a fund to help out of work gardeners. The association was doing much good, and notably in his district it had been the means of securing the Saturday half holiday in more than one instance.

Mr. J. Harrison Dick was appointed auditor in place of Mr. G. F. Tinley, the retiring auditor.

In the question of altering the rules (see report) rule 5 was left as it was. Toward the conclusion, Mr. Tunnington suggested that delegates be invited from the provincial branches to come to the next annual meeting, a suggestion that met with general approval.

and syringing the plants every day until the bloom appears. When the plants are well rooted, a weak solution of cow or sheep manure, applied twice a week, will be found very beneficial."

Among their new double Begonias for 1908 are the following:—Betty Tustall.—This is a pretty crimped Camellia-shaped flower of a delicate flesh colour shaded salmon. Captain Seymour Fortescue.—A very delicate bluish-coloured Camellia-shaped flower, of dwarf upright habit, the flowers standing out well above the foliage. Florence Nightingale.—Lovely salmon-blush Camellia-shaped flower of grand erect habit; a strong and vigorous grower. George Pike.—A flower of grand Camellia form, with beautiful large crimson-scarlet flowers, of perfectly erect habit; a strong and vigorous grower. Madame Granby.—A magnificent crimped creamy white flower, of splendid erect habit. Mrs. J. F. Bowen.—An immense Camellia-shaped flower of a bright salmon shade, a bold and upright growing variety. Mrs. Chalmers.—A pretty rose Camellia-formed flower of grand habit; a grand acquisition. Mrs. John Brinsmead.—Extra large perfectly-formed creamy-white flowers, of perfect Camellia shape, the large petals being

of good substance. Mrs. Whitelaw Reid.—A very attractive variety, the edges of the petals being daintily crimped, large Camellia-shaped flowers of a beautiful salmon-rose shade, flaked with white. Mrs. W. L. Ainslie.—This is without question the finest double yellow Begonia yet introduced, beautiful Camellia-shaped flower, splendid erect habit.

Young Gardeners' Domain.

* Mr. R. J. Taylor, of "Homeleigh," Claines, Worcester, has secured the prize for his article on "The Necessity of Observation."

The Necessity of Observation.

There are doubtless a great many attributes necessary to the successful management of a garden, either professionally or from an amateur standpoint. Of these I might mention patience, perseverance, and persistence, three P.'s which should be cultivated in every garden. Economy is another, which, though perhaps not universally studied, has to come into the plans of most of us. Vigilance is another, but there! I might go on and mention a great many more, yet the most important is observation. Let the ignorant novice have this valuable attribute and he possesses a key to knowledge such as he may search for in books in vain. There is no department of the garden where its value can be overestimated, but if it is more important in one part than another I should say it is the fruit garden. It is a well-known fact that certain varieties of Apples and other fruits do better on some soils and in some localities than others, and we can soon find out which sorts suit our particular soil and locality by observing the trees in our own district during the next few months.

In the flower gardens and shrubberies there is much to be learnt. You may be growing a new species of plant, of which you possess no previous knowledge. You will have planted some, maybe, in several different parts of the garden. You note its habit, and in which position it succeeds best. It may show a tendency to spread, to creep, or to climb; to flower best in full sun, or in partial shade, or even to revel in deep shade. Again it may show very unsatisfactory progress in hard, dry, caking soils, and yet run riot in a moist root-run. Maybe it looks best in masses, or loses its charm unless allowed to show its grace in single blessedness. It is obvious that the same treatment for all cannot result in success, and how can we find these things out better than by observation.

During the season, when the leaves are on the trees, we should take a look from our windows. We can see some unsightly object, which might, another year, be hidden by the judicious planting of a suitable tree or shrub. On the other hand, another tree may have grown beyond its limits, and blocked out an object of interest or beauty, and a note made now to have it cut back at the pruning season will be something wisely done.

I might with advantage say something, too, of colour arrangement. The effectiveness of a floral display depends chiefly on its arrangement. New ideas, happy associations, and contrasts can be thought out better with the plants actually in flower before you. Plants, individual or in groups, not pleasingly arranged may be noted for re-arrangement next season, and do not despise the ideas of your neighbours if they happen to have "scored" in the matter of arrangement.

Perhaps I can illustrate the value of observance in the department of garden foes by relating a little experience. Only last week I was troubled by some pest eating away the leaves of Sweet Peas. I visited them by day, and at night with a lantern, expecting slugs, but found none. Gradually the plants failed, despite all sorts of precautions. At last, after nearly a week I found the Pea weevil feeding on them at night. It is often the case, one culprit is suspected, while another is working the mischief.—R. J. T.

The Tuberous Begonia.

For greenhouse or conservatory decoration during the summer months these beautiful flowering plants are hard to beat. They are also now extensively used for bedding out purposes. Seed should be sown early in the year in pans of light soil, which should be watered and left to drain some time before the seed is sown. In sowing, it is best to place the seeds in a saucer first, as they are so very small; and mix some silver sand with them, as they can then be more evenly sown over the prepared surface, and no further covering will be required. Place the pans in a house where there is a gentle bottom heat, and set a piece of glass and some paper over them to keep them shaded. As soon as the seedlings are large enough to handle they should be pricked off into other pans, and kept in a gentle growing temperature, where they may be shaded from bright sunshine. I have found it a good plan the first year to plant them out into cold frames where several inches of leaf soil have

been placed. Here they will grow away freely, and make up good bulbs for another season, though they must be taken up after flowering is over and stored away in boxes of silver sand for the winter, where it is not too damp, and frost cannot reach them. In the early part of the following year they must be brought out, put into boxes of leaf soil, and be placed in a warm temperature to start them into growth. When nicely started, pot them up into pots according to the size of the tuber, in a mixture of loam, leaf soil, and sand. Pot on as required, and in the meantime remove them to the greenhouse, or where they are to flower. For the later pottings some cow manure may be added to the soil. Give careful attention to watering, and when the pots are filled with roots a little manure water from the farmyard may be given them. Keep them nicely staked and tied up, and the seed pods picked off, and they will then last much longer in bloom and present a more tidy appearance.—R. D., Suffolk.

Ferns.

The cultivation of ferns is very interesting where a good collection of different species is grown. Pot culture is the most handy and reliable; almost all the varieties will grow in pots, provided they receive a proper temperature. Hanging baskets are suitable receptacles for a good many varieties, and look very pretty for the fernery or conservatory. Another method of culture is to plant them on a wall, previously netted, with a space left, say, from 4in to 5in from the wall. This should be filled with good fibry loam, and the ferns placed in. The two chief ways of propagation are by division and spores, the former being quicker. Ferns, like most other plants, have their season of rest, therefore the best time for dividing them is just when the young fronds are appearing. If required for pots, a good porous compost should be prepared for them, consisting of fibry loam, peat, leaf soil, crock dust and a liberal quantity of sand. When potted it is advisable to spray them over two or three times a day, and water them very carefully. On no account should they be allowed to become dry, as nothing is more fatal. When the pots begin to get full of roots, the ferns may be given a stimulant, but in a very mild form. The best for this purpose is liquid cow manure and soot. One of the most useful for ordinary uses is *Adiantum cuneatum*; then for decoration, *A. formosum*, *Farleyense*, and *gracillimum* are especially adapted. The *Pteris* family, too, are very useful, especially *crenata*, *serrulata*, *tremula*, and *cretica albo lineata*. To grow ferns from spores, the spores should be placed in a shallow pan with a sprinkling of fine sand. These should be kept moist and dark till they show signs of germination. When large enough to handle, prick them out into boxes or pans, and put a sheet of glass over them till they are established. By growing them from spores many beautiful and curious plants are to be seen, thus making the culture very interesting.—C. E., Grimston Gardens, Yorks.

The Berberises.

Probably in the shrubbery there is no genus so useful and ornamental as this. At this time of the year we have them flowering, and what is there now in flower to compete with a well planted clump of *B. stenophylla*, or even a well-grown single bush. When not in flower the long arching growths add lightness and grace to the surroundings. As foliage for using with cut flowers during the winter months their uses are valuable indeed. *B. stenophylla* is a hybrid between *empetrifolia* and *Darwini*. *B. Darwini* comes next to my mind, and is a glorious sight when well flowered. As a bush it is somewhat disappointing, as it will grow irregularly unless cut, and then it does not appear natural. I like this species trained to a wall, as it adapts itself to such a mode splendidly, and when in flower it is as a flame of fire. In autumn and winter the foliage has assumed a tinge of rich purple, the peculiar shape of the leaves adding greatly to their beauty. *B. Darwini* is a native of Chili, its specific name doubtlessly being in honour of the author of "Origin of Species." *B. Thumbergi* is a great favourite. This is deciduous, and, of course, cannot compete with the foregoing during the winter months, but in spring the softness of the young foliage hides away the sharp brown spines of winter, and is studded with dots of small round flowers. It is in the late summer and autumn, and if there are no severe frosts sometimes into winter, that *Thumbergi* has its period of triumph. What is there that can compare with the brilliant colouring of these tiny leaves? They are aglow as a smouldering fire fanned by gentle winds. The long curved growths are indispensable for cutting, either to be used with flowers or by themselves, or with other foliage. For harvest festivals the branches have many uses, and add much to the crimson and gold used so much at that time. In the decoration for the dinner-table when in season this little *Berberis* is indispensable; even *Ampelopsis Veitchii* must take second place to it.

B. Wallichiana is another favourite, but to be seen to the best advantage it is a plant which needs attention. The old wood must be cut out, and the plant be allowed to make long growths, and these, gently arching, have a delightful effect among

other shrubs. Again, the long growths of shining, dark green leaves are invaluable for using with cut flowers during the winter and early spring months. *B. dulcis* is a nice little plant, but is apt to become crowded out when planted with vigorous growing shrubs, and is best when planted beneath standard or half standard plants in beds as a ground plant.

B. vulgaris is the only species that is indigenous, and then is not inclusively so. It has recorded to it as many as fifty varieties, but as is generally the case, many are so alike that they are hardly worth troubling about as varieties. At the back of the wild garden, and in mixed shrubberies running into woods and forests, this plant looks most natural. It is a mistake to bring it into the garden proper, or to mix it with many of the exotic shrubs planted nowadays. Its fruits are edible, and where birds are encouraged they appropriate the bush for themselves.—P. W. A.

Helleborus niger.

"Christmas Roses" do well in almost any ordinary garden soil, though a good rich loam is the best. A moist, rather shady position is the most suitable, but care should be taken to have it perfectly drained, so as to prevent stagnation. A top-dressing of good rotten manure or a little artificial is very beneficial, if applied about the end of March when the plants have finished flowering. As the flowers are easily spoiled by mud splashes it is best to plant in a place where they can be conveniently shaded in case of heavy rain or of a severe frost. Another and more popular plan of protection from mud splashes is to spread a thin layer of coal ashes among and round the crowns. This, I think, is quite as good as any method where frames or handlights cannot be spared for them, but the ashes should always be removed as soon as all the flowers are dead or cut.

To secure early blooms the plants may be lifted and placed in gentle heat, though they must not be forced too much. They may also be cut before expanded, placed in water in a warm house, and be allowed to expand, and the colour will then be much better. Besides being useful for cutting purposes, the "Christmas Rose" is a valuable plant for the herbaceous border, as at the winter season there are so few flowers to be seen in that department. They do not relish being moved about much, so it is always best to give them a situation where they may grow for years without being disturbed. They will, however, get too big in time, and require dividing. This may be done after they have finished flowering, and tearing in two is much better than cutting, as the roots do not get damaged so much by tearing as they do in cutting. The clumps to be divided should be very healthy, though even then they will not yield a very big crop of flowers the first year. If the plants are not in a healthy condition they should be replanted, but not divided, as dividing is apt to kill them when not in robust health. Another method of propagation is by seeds, but unless new varieties are wanted it is not worth the time and trouble, as it takes a long time to produce good flowering plants, and more often than not the seedlings are much inferior to the parent varieties.—T. W. L.

Greenhouse Climbers.

Climbing plants do much to make the greenhouse attractive, and take away the naked appearance of a house or conservatory devoid of climbing subjects. On the other hand, constant care is necessary to guard against attacks of thrip, red spider, mealy bug, and other vermin, which seem to have a partiality for climbers as a haunt. Careful watering and syringing will do a lot to keep these pests under control. Plants should not be placed in close proximity to the hot water pipes, as the soil is apt to dry up too rapidly. Cold draughts must also be avoided; and the climbers should be so arranged as not to deprive plants growing underneath of their legitimate supply of light.

The species suitable for cultivation as greenhouse and conservatory climbers are many and varied. Roses cannot be excelled, whether they be required for covering walls or pillars, or for training up wires fixed to the rafters. Amongst the most popular varieties for this purpose are *Maréchal Niel*, *Niphetos*, *W. A. Richardson*, *Climbing Devonensis*, and *Gloire de Dijon*. All old sorts, but they have stood the test of time. Roses do well if planted in boxes or beds containing good stiff loam. When planting it is well to cut back the shoots a short distance. If attacked by mildew a dusting of flowers of sulphur will be found efficacious.

Bougainvillea glabra does exceedingly well trained up the rafters. They may be allowed plenty of scope to ensure a good show of bloom. They should be dried off at the end of each year, and cut hard back about February or March before growth again commences. During season of activity liberal applications of soft water and liquid manure prove most beneficial. *Lapagerias* flourish in shady houses. *L. rosea* and *L. r. alba* are the two best. A good rich compost of peat, loam, and sharp sand should be provided. Good drainage is

essential for success. A keen watch must be kept for slugs, as these find the young growths of *Lapageria* highly palatable.

Fuchsias are largely planted for climbing work, and are equally good for rafters or pillars. They may be kept dry during the winter months, and cut well back early in the year. The varieties to be planted are many, and depend upon the individual taste of the grower.

The quick growing *Passiflora edulis* or edible fruited passion flower is very useful where a rapid growth is desired. All *Passifloras* flower more freely in a soil that does not contain a superabundance of plant food. In rich soils the plants run too leafy at the expense of the flowers. *P. Banksi* and *P. atropurpurea* will also be found to be appreciated.

For hiding and covering unsightly walls and other places zonal and ivy *Pelargoniums* are extremely suitable. They are easily grown, bloom well, and create a bright, cheerful appearance. They are not much troubled by insect pests; and except for tying, require very little attention.

Few things are better adapted for greenhouse culture than *Plumbago capensis*, the pale blue flowers of which make a most agreeable change to the usual run of reds and whites commonly met with in greenhouse plants. Good soil is required, and as the young shoots produce most bloom the plants should be well pruned at the termination of each flowering season, and rested until the following spring.

Acacias, *Heliotropes*, *Abutilons*, *Swainsonas*, and *Cestrum* are all amenable to treatment as greenhouse climbers. The appearance of a house may be improved one hundred per cent. by a judicious use of climbing subjects.—C. H.



Artificial Swarms.

The past winter and spring from which we are now emerging have been for bees the most severe experienced for the last ten years. This is accounted for by the length of cold, alternate wet and dry weather, during which the bees have in most cases consumed their stores, and not having a chance to gather any natural food, have been unable to exist. One apiary, whose owner is of a parsimonious turn of mind, has had the whole lot starved to death. The bees wintered well, the mortality being low, and if the weather had continued dry and cold, alternated with warm spells, during which bees would have been able to gather a little, or take food from the feeders, all would have been well.

The season so far is very backward, and those fortunates who still possess good colonies will be well advised to stimulate them with a view of increasing, and instead of waiting for natural swarms to issue it will save time to make these artificially where increase is desired. An artificial swarm may be made at any time when there is a sufficiency of bees, and it is not necessary to place combs in the bar frame hive to induce them to stay in it. To make a swarm from a skep, blow a little smoke into the hive amongst the bees, invert it, and set it on a convenient chair or pail, then fix an empty hive with its edge raised on the edge of the full one at its highest point, which should be at the end of the combs, drum the sides of the lower hive with the palms of the hands, and in a few minutes the bees will begin to ascend, and presently the queen will be observed trailing her long body in a waddling way over the bees, evidently in a hurry to reach the security of the upper hive. As soon as she is observed ascending the drumming should cease, and the upper skep should be at once removed.

If it is intended that the swarm shall remain in the skep, place it immediately upon the stand from which the full stock was removed, taking the latter to a new location; but if they are to be put into a bar frame hive set the latter there, and raising the hive proceed as in hiving natural swarms, only be sure that the queen is placed within the hive. An early artificial swarm may be made by driving the whole of the population from a full hive, and setting the latter in the place of a second full stock, and the driven bees on their own stand. Artificial swarms from bar frame hives are made by lifting out the comb upon which the queen is parading with her bees, and placing it in a new hive—near to one side, one or two frames (empty) only being between. The full hive is then removed, an empty being put in the place of the one abstracted, and the hive containing the queen placed in its stead. To improve a weak stock of bees give them a comb of brood from a strong colony, and feed gently and continuously.—E. E.



Fruit Culture Under Glass.

EARLY VINES.—The Black Hamburg and other early varieties that are ripe must now be kept cooler, and the house may be ventilated freely to keep the fruits in good condition. A temperature of 60deg will be ample, and this will be maintained with a very small amount of fire heat, unless the weather is wet and sunless. Houses of Madresfield Court require more warmth to finish, but this Grape cracks badly with too much moisture, so that it is well to give a small amount of air on the top ventilators at all times, and to ventilate freely early in the day; at the same time it is well to give the roots the necessary supply of moisture before the finishing stage. To assist root action and maintain a healthy leaf growth it is well to mulch the border, and after this is done to damp down on bright days, and to shade lightly over the glass to preserve such kinds as Black Hamburg. From this date lateral growth may be allowed more freedom, and as soon as the crop is cleared syringe the Vines well to cleanse from any pest and to maintain an healthy leaf growth.

MUSCAT GRAPES.—Vines started as advised will now have passed the stoning period, and to get the best results ample warmth is required. The temperatures should be 65deg at night, and 80deg to 85deg by day. Damp the house down early in the day, and again at closing, so that genial atmospheric moisture is maintained. Vines that are grown under inferior glass at times scorch badly, and to prevent this I have used a single fish net as shade. This is soon removed, and it preserves the foliage till the fruit is quite ripe. From this date the roots should get generous treatment in the way of food and moisture.

LATE VINES.—Owing to the cold spell of weather in the spring, these Vines are later than usual, but now growth will be rapid, and all borders should be thoroughly watered where necessary, and growth encouraged by early closing and damping down, as this saves fire heat. There should be no further delay in thinning out surplus bunches with Vines sufficiently advanced, but in the case of the bad setters, such as Alnwick Seedling, a few more bunches should be kept till the setting is past. In thinning late Grapes, it should be remembered that keeping varieties must not be crowded in the bunch, and at times it is advisable to remove loose shoulders in unshapely bunches.

PLANTING YOUNG VINES.—Now is a good time to plant young or growing Vines, and often it would well repay to clear out old or useless ones that have failed to crop, and plant as advised. A small border will suffice at the start, as it can be added to as required. After the planting, shade from bright sunshine till growth is active, and mulch the border with loose stable manure. The temperature at the start should not be high—60deg at night is ample, and afford a moderate amount of moisture. Inarching should now be done at this date. Some varieties are greatly improved by inarching, as delicate growers give a better return on a stronger stock, and any inferior kind can be replaced by a better kind. Pot Vines are most useful for this purpose.—G. W., Brentford.

The Flower Garden.

BEDDING OUT.—This work is at present occupying most of the time in this department. The hot dry weather is not very favourable for the plants to encourage them to root and make more growth. Late in the afternoon the plants in the beds which are already finished will benefit by a light spraying with a syringe or garden engine. Those planted during the day should be well watered in. Unless the plants are large and well furnished, all blooms will be better removed as planting proceeds. Secure to stakes Fuchsias, Heliotropes, and other tall-growing subjects.

CARNATIONS.—Continue to tie the flowering growths as they lengthen to the stakes already provided, and put in more stakes to any still requiring them. Hazel and other stakes which are used as cut from the trees will not be very conspicuous, but if any prepared Pine or deal stakes are used they should be painted green. Sprinkle a little fertiliser amongst the plants, and stir the surface soil. Sow seeds to obtain plants for flowering next summer. These may be sown in boxes and placed in a cold frame, or in drills on a spare piece of ground outside.

ROSES.—Suckers from the stocks on which the Roses are worked often push up in considerable numbers at this season of the year. Remove them as soon as observed. An Asparagus

knife we find a very suitable tool for the purpose. Hoe the beds and borders to keep down weeds and prevent the surface of the ground from becoming hard and caked. Water those trees which are newly planted. Should there be any green fly on the tips of the shoots, spray or dip them in a solution of softsoap, quassia chips, and tobacco juice. This is best done in the evening, syringing the shoots with clear water the next morning. Hand picking is the most effective, though a rather slow remedy, to rid the plants of the caterpillars of the Rose sawfly, which rolls itself up in the leaf.

ANNUALS.—The hardy annuals sown in spring are ready for a second thinning. Transplant any where they are thick to fill up gaps. Water them after the thinning is completed. Half-hardy annuals raised in pots or boxes under glass, having been carefully hardened, can be planted in the beds and borders where they are to flower. If possible, this is best done on a showery day.

GENERAL REMARKS.—Continue to hoe herbaceous borders, and thin the plants on which there are too many shoots. Mulch Violas which are growing in somewhat dry and exposed positions. Keep the grass on lawns cut close, edge the beds and walks. Newly laid turf in dry localities where the soil is light will benefit by good soakings of water. Remove the old flowers from Rhododendrons (including Azaleas) as they decay, to prevent the production of seed-pods. The rock garden will need attention, remove old flower spikes, keep the bays and pockets free from weeds, and water when necessary.—A. O., Kew, Surrey.

The Kitchen Garden.

HOEING POTATOES and earthing up should be pressed on if the soil is in proper condition. If it is in poor condition now is a good opportunity for adding some suitable fertiliser, but it is essential that the grower should know what the soil lacks, as it is a waste of manure to add what it already contains. But I have never known Clay's fertiliser to fail in improving the crop when added to the soil at earthing time.

THINNING CROPS.—All crops should be carefully thinned as the seedlings become large enough to handle. I think most gardeners are too free with the seed at sowing time, not because they wish to waste the seed, but to be on the safe side against insects, birds, and other contingences, with the result that the rows are thick, and entail a great deal of thinning. Any crops that are backward may receive a little sulphate of ammonia.

PEAS AND BEANS.—More Peas should now be sown to keep up a constant supply. Autocrat is a first-rate Pea for present sowing. This is one of the best of Peas for the general crop. Dwarf Beans may also be sown, and will come in very useful. Scarlet Runners should have the sticks placed to them, and may receive an abundance of water. In case any of the seed failed to germinate, the vacant places should be filled up with the surplus plants.

BRUSSELS SPROUTS.—A good breadth can be put out. If they were pricked off they will lift with a good ball of soil attached to the roots, and will in consequence receive very little check. Plant firmly, and water them in well.

CELERY.—This may now be planted for an early supply. Take the plants up with good balls of soil attached, and give an abundance of water as soon as planting is completed. The plants should be sprinkled over each day when the weather is fine and warm.

MARROWS IN FRAMES.—As soon as two or three fruits are set, the points of the growths on which these are growing should be nipped out. The plants ought to be freely syringed, and should receive an abundance of water. The lights may be removed each day, unless the weather is cold. A warm shower of rain would be of immense benefit to them.

CAULIFLOWERS.—A good breadth of Early Giant or some other approved autumn Cauliflower should now be planted out on rich, well-prepared soil. Lift the plants with good balls of soil. Give the earlier plants a good soaking of liquid manure.—A. T., Cirencester.

Hybrids of *Gladiolus primulinus*.

A paper on this subject has been prepared by Dr. W. Van Fleet for the "Rural New Yorker." Nearly 2,000 hybrids of the new pure yellow *Gladiolus primulinus* bloomed on the Rural Grounds last season as the result of active breeding work since the species came into his hands in the autumn of 1905. Crosses were made at every favourable opportunity with a great number of selected garden varieties, and with every available species of both winter and summer-blooming types. Naturally the main effort has been to breed superior yellow varieties. It was also desired to determine to the greatest possible extent the influence of this very distinct and new species on dissimilar *Gladiolus* forms. The results are most interesting, and indicate that *primulinus* is likely to prove an important factor in developing attractive new varieties.

TO CORRESPONDENTS

All Correspondence relating to editorial matters should be directed to "THE EDITOR," 12, MITRE COURT CHAMBERS, FLEET STREET, LONDON, E.C. Persons sending manuscript or photographs, when not specially requested by the editor, and making no demand for remuneration, are presumed to solicit publication without payment. In order that no misunderstanding may arise, and in order to secure the return of their contributions, contributors should state the fact that they expect remuneration, and in all cases, even when contributing voluntarily, correspondents should enclose a stamped envelope if they expect their enclosure to be returned. Under no circumstances can replies or other information be sent privately, even if stamped addressed envelopes are forwarded.

ROSE GRUB (Staffordshire).—Carefully search for the grubs, and crush them between finger and thumb. Keep the trees thoroughly and forcibly syringed, using decoctions of soft-soap and paraffin (one glass of the latter to one gallon of water), and churn up thoroughly; or quassia extract could be used. Yes, the nitrate dressing would force on growth; but this can easily be overdone. Use it carefully, and only at intervals. Employ liquid cow manure, soot water, &c.

RHODODENDRONS AND AUSTRALIAN PLANTS (G. W.).—If the Rhododendrons are so greatly injured, cut away all growths that do not appear likely to recover, and, providing the plants are in suitable soil and the weather proves favourable, active growth will soon commence. For the Australian plants you name the temperature of a greenhouse will be necessary in your latitude, as very few of them will survive a winter in the open air even in the South of England unless they be trained to the South aspect of a wall and protected in severe weather. The seeds should be sown in sandy peat, the pots being well drained and placed in a warm house over moderate bottom heat, supplying water carefully, and potting the young plants singly as soon as they are large enough, for they soon damp off when left crowded in the seed pans.

PLANTING SEAKALE (Idem).—Plant one-year-old plants in rows 2½ ft apart, inserting the plants in threes, in a triangle, 6 in from crown to crown, and 2 ft distant from each other in the rows. Beyond removing weeds and flower stems they will not need any further attention, although liquid manure may be given freely in dry weather. They will afford tops for cutting in the following spring, which though purple in colour will be good when cooked, they being cut when about 6 in long and close to the base, so as to retain all the leaves. To have the heads white or blanched they should be covered with pots or hurdles so as to leave an open space over the crown, and those should be covered with litter so as to exclude light, or if wanted early may be surrounded with fermenting materials.

DEUTZIA GRACILIS (R.).—Your plants did not flower because the growths were not matured. If young shoots are issuing from the base plentifully you had better cut out the old stems, and the young growths being matured will flower freely another year. Grow the plants on in a very light greenhouse, watering them copiously, and when the weather is genial place them in a sunny position out of doors, plunging the pots in ashes, and do not let the plants suffer by want of water. The growing shoots should not be stopped. If the plants are in very small pots they may need repotting; but it is not advisable to overpot, the removal of the surface soil, and a dressing of fresh loam, often answering equally well. They grow well in turfy loam.

TEMPERATURE OF HOT-WATER PIPES (C. S.).—After a boiler has been worked for some time up to its full power, the water will at leaving the boiler have a temperature of 200deg to 212deg. The temperature of the water in the return pipe just before entering the boiler is from 160deg to 180deg after circulating through pipes 150 ft in length from the boiler, or with return 100 yards. A great deal depends on the distance the water has to travel after leaving the boiler. In an ordinary forced vinery 160deg to 180deg is quite hot enough for the pipes, and there will not be more than 10deg difference between the flow and return pipes after the boiler has been at work a sufficient time. In some powerful boilers the water will leave it at 210deg to 212deg, and after traversing 300 ft of 4 in enter it again at a diminution of temperature of about 12deg, but it should be borne in mind that such a boiler is probably only heating one-third or fourth of the piping it is capable of heating.

FORMING COMPOST (Idem).—To three parts of good strong loam add one part of manure and three parts of coco refuse, throwing them into a ridge-like heap in a sunny situation, and turn the heap over a few times during the summer in dry weather. With the addition of about one-sixth of sand it will be available for potting most kinds of plants.

AMARYLLIS AND JACOBÆA LILIES NOT FLOWERING (P.).—Keep the plants close to the glass in a stove temperature. Water them copiously, and when the pots are filled with roots give liquid manure occasionally, and syringe frequently. Continue this treatment until the growth is complete; then afford less water, yet keeping the soil moist, for they ought never to become quite dry at the roots. They will, if a good growth be made and well ripened, flower next year.

POTTING CHRYSANTHEMUMS (Reader).—You may transfer the plants from the 5 in pots in which they are growing into their blooming pots if these do not exceed 9 in in diameter. If you wish to bloom the plants in 10 in and 11 in pots a preparatory shift into 7 in pots would be advisable. Some of the finest blooms exhibited last year were produced by plants that had been shifted from 5 in into the 8 in and 9 in pots in which they flowered. If you transfer to the blooming pots at once do not quite fill the pots with soil, but leave room for top-dressings. In placing plants in very large pots much care is necessary in watering until the roots have taken possession of the soil.

CUCUMBERS NOT SWELLING (J. C., Ewell).—As the plants are strong and the roots as healthy as you can desire, we do not think they are affected by the "disease," which appears in the form of nodosities on the roots which contain minute nematoid worms. Exudation from the fruit results from an excess of sap induced by the too rich food which the foliage and fruit cannot elaborate; and it is parted with by the fruit, also the young shoots and stems of the plants. It is common to very luxuriant plants when the night temperature is too low and damp. This also causes the tips of the fruit to decay. Cold water applied to the roots and too late closing of the house conduce to the same result. Diminish somewhat the supply of water, but not so as to cause the foliage to flag. Maintain a night temperature of 65deg to 70deg, a day temperature without sun of 75deg, with sun 85deg to 90deg, and abundant ventilation. Shade slightly if the plants cannot endure bright sun, but the less shading the better, only employing it as the least of two evils, the greater being scorching. Close as early as possible so that the temperature does not afterwards rise to more than 90deg, syringing and damping the house at the same time, but the plants, paths, &c., should be dry before nightfall. The minute portions of the leaves and fruit, and the shrivelled condition of the former on arrival, are not sufficient to enable anyone to form a satisfactory estimate of the real state of your plants.

NAMES OF PLANTS.—Correspondents whose queries are unanswered in the present issue are respectfully requested to consult the following number. (M. L. G.)—*Crataegus tanacetifolia*. (R. T.)—1, *Salix babylonica*; 2, *S. Caprea*; 3, *Pteris cretica albo-lincolata* Alexandræ; 4, *Scirpus lacustris*. (J. R.)—*Phlox Nelsoni*. (M. P.)—1, *Veronica Teucrium*; 2, *V. Cotoneaster*; 3, *Prunus cerasifera*, the *Myrobalan Plum*. (Bee).—1, *Ophrys muscifera*; 2, *Ophio pogon Jaburan variegatus*.



The Value of British Land.

There is a vast amount of misconception by the general public on this question. Three-fourths of the people imagine that all land is valuable, or at any rate would be so if properly handled. The real value of a thing is the price it will fetch in the open market. We can hear someone cry, "Oh! but so much land in this country never is in the open market, as the large landowners do not offer their farms to the highest bidder." We do not deny that there is much truth in that statement, but there is quite sufficient British land which is constantly coming in the market to show that land at low prices may be readily obtained.

Within our own knowledge, and but six years ago, an estate of eleven thousand acres, all in one district, but somewhat scattered, was bought by a local syndicate for fifteen pounds per acre. The estate was resold, chiefly in separate farms, and

in many cases to tenants during a period of three years, until 500 acres were left, which no one would have until an enterprising man was found who was bold enough to offer about six pounds an acre for it, and he got it. That land is not forty miles from the "Daily Mail" farm at Grantham. The owner is a man who likes to turn his money over, and people wanting small farms might find it worth while to inquire of him.

The disadvantages of that 500 acres lay in its being scattered here and there in single fields, chiefly without any buildings, some of the fields being very strong, and others very light sand. They lay in a district of generally undesirable soil, without anything of the picturesque to attract outsiders. That syndicate made but a very small profit out of that estate, but they got a good bit of cheap shooting.

In this parish we are to have a sale of old pasture, which is expected to make about fifty pounds per acre. It is good land, and cost the late owner nearly double. Situation is the main factor in determining the value of land. The property just mentioned would make a big price if it were near a large town, but it is at the far end of a remote country parish. Poor land, and of little value in the country, would be valuable near the great centres of population.

Climate also makes a great difference. In some parts where the climate may be depended on, the completion of the corn harvest in August is almost a certainty in any season, whereas we are well acquainted with districts where periodically, and at rather short intervals, too, the farmers have a difficulty in getting any harvest at all.

Perhaps our readers may remember the invasion of Essex by Scotsmen fifteen or twenty years ago, and how these men saved much of the county from going out of cultivation. The previous occupiers had lost both heart and money. What induced the Scots to make the venture? Mainly, of course, very low rents, but we believe there were, too, other important items, first, the proximity of London; second, a dry and dependable climate.

Another great point is natural fertility. There are ideas knocking about that any kind of land will grow good crops, and that it is only a matter of good, and we might say strenuous, cultivation. Well, that may be so or not; we know from experience that poor land occasionally grows a good crop, with many comparative failures wedged in between, whereas on good land of natural fertility there is seldom a semblance of failure, and this without all that extra expense and energy devoted to the other. Everyone who has practical experience knows very well that some land is cheap at £2 or £3 per acre, whereas other land is hardly worth having. The selling value of land is often affected by the possibility that minerals, lime, or clay may be profitably worked upon it in the future. We have known fortunate owners make small fortunes by selling sand for building purposes from property which was so poor as to be for other purposes almost valueless.

Proximity to a railway station is so important to a farmer that the neighbouring farms are always well let. There is not only the great saving in delivery of produce, and the advantage in doing a new milk trade, but town manure can be got by rail, which a farmer four or five miles away could not afford to buy on account of the great expense of carting.

To farm arable land, some kind of building or homestead is absolutely necessary. The relation which the buildings bear to the land is not always properly understood, and the cost and upkeep of the buildings not always sufficiently taken into consideration. There are many large estates well managed, with the buildings kept up-to-date, and in first-class condition, but which produce a very small net rental from the land itself. Of course, a farmstead is as dependent on the land as the land is on the farmstead, but the land was there first, and the necessary buildings have been added to it.

For poor rate assessment purposes land is assessed separately, the overseers usually assessing the farmstead, and charging the balance of the rent to the land. We know of farm buildings and houses assessed at ridiculously small figures in proportion to what they would have cost to build, and there are very few exceptions to this, so we might really call it the rule. It should be obvious, therefore, that the land pure and simple is worth less than it appears to be.

There can be no doubt that sport has borne a great part in keeping up the value of British land. Hunting has done so, but in a less direct way than shooting, which has caused a keen demand for compact estates of decent size. We think the sporting value of these estates is often assessed far below what it should be. Many of them are bought with a view to shooting alone, and a good head of ground game is expected in addition to a large number of reared pheasants. The tenants, in spite of the Ground Game Act, are powerless to keep hares and rabbits down unless the keepers wish them to do so; but heavy reductions of rent often suffice to secure acquiescence in seeing damage done to their crops. We have known several cases of this kind, but as long as both parties are satisfied it is no business of ours. But there is one very objectionable point: having got his rent reduced, the farmer appeals against his assessment, and usually succeeds unless the assessment com-

mittee be a strong backed one. We hold that in these cases the reduction on the farmer's assessment should be added to that of the game tenant, for the reduction of the farmer's rent is practically an additional game rent paid by the landlord for the privilege of having good shooting.

We are wondering if many cows, or rather owners of cows, are as fortunate in other districts as they are here. In this parish there is an immense amount of lane herbage, and the fee per cow for the whole of the season is somewhere about 25s., this including the tenting. It must be a tremendous boon for these little cow-keepers, and the lanes are so many that there is constant change of pasture. Probably these cows get a greater variety of grasses than the ordinary farmer's stock confined within four fences. We only wish these good folk with their cow or two apiece would just co-operate and make a uniform butter, or, better still, become co-operative milk sellers on a large scale. They would find it more profitable, and far less trouble. A leader with great personal influence is wanted to make a scheme of this sort "go" in every large village or collection of small communities.

Work on the Home Farm.

The fine weather continues, but we have a few genial showers which not only freshen the growing crops, but help in the production of good mould for the turnips. It has been a splendid time for hoeing, but the heavy transpiration (on one or two occasions almost frosty) made things bad for the men who were not provided with leggings. We saw some women to-day returning home from work (hoeing, we supposed), and their skirts were pictures of bedraggledness. We have many women here who will go to gather or sort potatoes, but who will not go to hoe corn. There is plenty of hoeing still, for thistling is a very tedious job, and there is a great deal of work amongst potatoes, the forcing weather we have had lately having encouraged the weeds as well as the cultivated crops.

Turnip land which has been recently ploughed, ridges up very rough, and the ridges have to be rolled before they are split, and the seed drilled. We saw a man sowing turnip tillage a day or two since—an uncommon sight now manure distributors are everywhere. Every large farmer owns one, and the small farmers can hire. An advantage gained by their use is that the manure must be in fine condition. For their invention, or rather improvement, we probably have to thank the discovery of the manurial value of basic slag.

Turnip ridges which have been drilled, should always be rolled with a light flat roll, leaving the soil as smooth as possible, with no crevices for the flies to hide in.

There will be a splendid crop of clover, unless the summer is abnormally dry. Every seed appears to have grown.

Horse-hoeing potatoes has unearthed some very rough clods, and without rain to soften them, they will be difficult to deal with. The potatoes being up, ordinary rolling is impossible, but if some of the rings be removed from a Cambridge roll, it may be so arranged that the remaining rings will follow the furrows and break the clods, there being an empty space over each ridge.

Foals are healthy, and we have not yet heard of a case of navel ill.

The Utility Poultry Club's Twelve Months' Laying Competition.

Seven months have now elapsed since the competition arranged by the club began, and, in spite of the wet weather, some excellent laying has been recorded. It should be observed that twenty pens, each containing six pure bred hens, are competing at Rayne, near Braintree, Essex, upon the farm belonging to the hon. secretary of the club, and under his personal supervision. Each pen has a separate house and grass run, and trap nests are used, so that the individual score of every bird is accurately kept. The following are the totals of each pen for the seven calendar months:—1st, white Wyandottes, 690 eggs; 2nd, ditto, 614; 3rd, ditto, 613; 4th, ditto, 599; 5th, ditto, 564; 6th, white Leghorns, 550; 7th, buff Rocks, 538; 8th, white Wyandottes, 537; 9th, black Wyandottes, 484; 10th, white Wyandottes, 475; 11th, buff Rocks, 472; 12th, white La Bresse, 459; 13th, white Wyandottes, 466; 14th, Houdans, 452; 15th, white Leghorns, 436; 16th, buff Rocks, 427; 17th, barred Rocks, 427; 18th, white Leghorns, 376; 19th, ditto, 330; 20th, partridge Wyandottes, 326. No less than sixty-two, i.e., more than half of the birds, have laid twenty eggs or more during the month, while five birds have laid twenty-six eggs, and a white Leghorn hen produced twenty-seven eggs in the thirty days. The highest total of any pen for the month was again attained by the 11th pen of buff Plymouth Rocks, with 143 eggs, or an average of nearly twenty-four eggs per bird. The black Wyandottes also did well with a total of 140, two birds laying twenty-six eggs each. Needless to add, the weather has been remarkably inclement, and it has been a month of varying temperatures, easterly and northerly winds, snow and rain—on several days the runs were a quagmire.

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Journal of Horticulture.

THURSDAY, JUNE 11, 1908.

Out of a Place.

BEFORE me, as I write, I have a letter from a gardening friend asking me that if I should hear of anything likely to suit him, will I kindly let him know. You know what this means, my readers, because perhaps you have received similar letters yourself, or, may be, at some time in your career you have written one of them. Out of place! It is a state of affairs that private practitioners of to-day have a wholesome dread of, and it is not to be wondered at, considering the preponderance of gardeners and the comparative scarcity of places. I wonder how many eligible gardeners there are to-day out of place, and anxiously on the lookout for anything likely to suit them? The overcrowding of gardening is admitted, while everyone agrees that wages are lamentably low, and the social standing of gardeners is not what it should be. The British Gardeners' Association was established with the laudable object of improving matters, but whether it will succeed is a question for the future to decide.

The roll of membership of the B.G.A. increases slowly, too slowly for some of the promoters of the institution, and gardeners are charged with being weak-kneed and blind to their own interests. They may be; I do not pretend to argue the point. But it must be remembered that many of the people who make the charges are not private gardeners; they do not fully realise the difficulties or the position of the latter, nor do they know as well as him how fastidious some employers are, and the peculiar views they take of things. In face of all this, I do not think it is surprising that many gardeners are content to sit on the fence where the B.G.A. is concerned, and let well alone; for, after all, the association in the eyes of some employers flavours of trades unionism. However mistaken the idea may be, the gardener knows that the B.G.A. is not likely to find him

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another situation if he happens to lose the one he is in on its account. I do not write this with any idea of depreciating the efforts of the association, for I believe its principles and objects are good, but I am putting the situation as it appears to many gardeners, who deserve sympathy rather than criticism.

There are good and considerate employers, and some who are exacting even to being tyrannical. The gardener whose lot is to serve the latter is not to be envied, and the man in the street condemns him as wanting in self-respect because he puts up with snubs and slights enough to make any human blood boil. Why does he do it? Because he knows the state of the labour market, the scarcity of places, the difficulty of getting in again when one is once out, and perhaps, poor fellow, he has a family of children—"encumbrances" they are called in the advertisement. A hateful word it is, especially at a time when the decrease in the birth-rate of the country is getting to be a matter for grave concern. The gardener knows full well that if he has more than one or two children they will be in his way of getting another situation, and for their sakes he puts up with things that are distasteful to him, pockets a low wage in return for his knowledge and labour, and waits patiently, and, Micawber-like, hopes something better will turn up. Inclination tells him to throw it up: good sense says wait, for where are you going to get a situation when you are out of this one?

What are the causes which lead men to being out of place? We will leave out those cases in which it is the gardener's own fault, and through some neglect of duty, incompetence, or ill-behaviour he is asked to resign. In these instances the man has no one to blame but himself, and if he suffers it is no more than might have been expected. But what of the man who finds himself out through the death of an employer or some other circumstances over which he has no control? Surely he has claim on our sympathy, because to-day he is holding a respected position with a staff of men under him and a certain amount of power. What is he when he is out of place? Nothing, till he gets another one, and this is where the unfortunate part of the situation comes in. The man is a gardener or nothing; there is no medium, course, as many have had good reason to realise.

The nurseryman, kindly enough no doubt, opens his doors to the gardener out of place, and offers him employment till he gets suited; but what is it? The man who was a head gardener yesterday becomes a nursery hand to-day, and the nurseryman in return for his generosity gets expert labour for which he pays wages that any self-respecting navvy would reject. Who can tell but the man himself what the gardener suffers as he drags on, as some do, in the nursery week after week, perhaps month after month, keeping life and soul together—one cannot call it living—on a few paltry shillings a week; parted perhaps from his wife and family, and hoping, as men only can hope when they are in a tight corner, for something to turn up. After allowing full credit to the nurseryman for giving temporary employment to the gardener out of place, is it too much to expect of him to pay for the labour of the latter at market value, instead of giving him a miserable pittance in return for his work? When the out-of-place gardener goes into the nursery he is expected to put his shoulder to the wheel.

In view of everything then, is it surprising that the gardener dreads the thought of being out of place, and to avoid this he puts up with things that he would not tolerate in other circumstances? Put yourself in his position, my reader, and then answer the question. And considering the uncertainty of the gardener's occupation, the poorness of his wages as a rule, the liability of being thrown out at any time, and the difficulty of getting in again should this happen, need we wonder at any gardener hesitating about bringing up his sons to the same calling? Instead of doing this they look about for another occupation that offers more security, and in which the whims and fancies of employers have not to be studied to the same extent. It is said that the standard of gardeners from a point of intellect and education is not so high as it used to be. So far as I am concerned the question is open, but if such is the case it may be because gardeners are being drawn from the ranks of day labourers instead of the sons of gardeners and others who are socially and educationally a step above labourers. Not that the labourer's son who shows capacity should not have the chance of becoming a gardener, but with many bright exceptions, it is a debatable question whether a number who crowd the ranks are fitted for being gardeners.

How is the gardener who is out to get another situation? There are three courses which suggest themselves, viz., advertising, by the recommendation of a nurseryman, and private influence. Of these three, advertisement is a weak staff to lean upon, for comparatively few gentry in need of a gardener consult the advertisement columns of a paper. They have no need to, because by a lift of the finger they can bring applicants for the situation around them in shoals, that is to say, if the place is of the average character, and many a gardener in search of a situation has spent money that he could ill afford to no pur-

pose in advertising until he got sick of the whole thing, and gave up this means in despair. In the old days gardeners used to look to the leading nursery firms to find them a situation when in need of one; but, if reports be true, nurserymen do not fill half the places that they used to do, and to go into a nursery is by no means a sure and certain way of getting speedily suited. Private influence and recommendation is the other course, and it is doubtless the best one. It is through the influence of ladies and gentlemen who move in good society that gardeners get situations, and perhaps more places are filled over the dinner table than anywhere. It is evident then that the men who have influence amongst the wealthy stand the best chance, and even they cannot make places, or certain gardeners who have served in aristocratic families would not have to wait so long as some of them do.

Am I taking a dismal and pessimistic view of the case? I hope not, as these lines are not being written with any idea of discouragement, but it is well sometimes to look facts fairly and squarely in the face, and in support of my remarks I do not appeal to those who for years have held comfortable situations under considerate employers, but rather to those who know from bitter experience what it means to be out of place.—G.

It is somewhat curious that we should always speak of thunderstorms and of the damage they cause when, in point of fact, the thunder is entirely harmless, and is merely the crack and multiplied echoes due to the sudden closing up of the aerial vacuum created by the lightning flash.

Thunder. When we consider the varied nature of the thunder peal and the time it often lasts, it is somewhat of a puzzle at first sight how it can be caused by an absolutely instantaneous discharge of electricity through so impalpable a material as atmospheric air. A little consideration, however, of a few points elucidates the mystery. In the first place, if the electric discharge occurs quite close to us, the thunder instantly follows as a single loud, sharp, deafening report, the rumbling noise following; if a little farther off, a succession of sharp crackling noises is heard, and then the rumbling of the echoes.

It will often have been noticed too, that as a result of the self-same flash, comparatively loud reports are heard when the rumbling has to some extent died away, and another thing is that not infrequently a stunning report heard at one point has not been specially noted in the immediate vicinity. To account for all these apparent vagaries we must first bear in mind that a flash of lightning may traverse a very large space, even hundreds of yards. We see the whole of the flash at once, and the sound engendered by it is also produced all at once from end to end of its journey. Sound, however, travels at a snail's pace as compared with light, and as a consequence it reaches our ears not as a single crack, but as a crackling succession extending over as long a period as sound would take to travel from the nearest to the more distant point of the discharge. Next we have the fact that the sound is reflected as echoes by the clouds, and these echoes are re-echoed, and reach our ears as more or less softened or muffled grumbings, and arriving as they necessarily must from various distances, it sometimes happens that two such echoes reach the same point simultaneously, doubling the loudness.

With regard to the tremendous nature of the noise involved by the sudden closing up of the fissure in the atmosphere created by the electric discharge through it, and the apparent inadequacy of so tenuous a medium as air of creating such by mere collision of its reunited particles and the consequent vibration which conveys the sound to our ears, it is well to remember that practically all sound, loud or otherwise, is produced by aerial agitation. The report of a cannon, the nearest artificial imitation of thunder, is due, however, not to the mere splitting of the air and reclosing of the space, but to the disturbance caused by the instantaneous introduction into it of the volume of gas produced by decomposition of the explosives used. The surrounding air is consequently suddenly compressed and pushed aside, and thereby a ring of vibrational waves is set up, which eventually reach our ears and form the report. With the electric spark, however, of which the lightning is but a large example, its inconceivably intense heat is probably a factor in the sound production by sudden expansion of the air it traverses, plus the mere splitting of the aerial mass by its passage.

As regards the cause of the lightning storms of which we have recently had some remarkable examples, it seems so far to be little understood. Although usually associated with hot sultry weather, they may even occur in winter, and in a snow-storm. They are usually heralded by the appearance of masses of cumulus cloud with ragged detached edges and of a peculiar ruddy or brownish tint, which is known to be due to electric tension. Therein the electric forces appear to accumulate on opposite lines until the strain is relieved by the sudden passing of a stream of electricity from one area to another; the thunderous peal results, the watery particles constituting the cloudy masses fly together as if magnetised, and down comes the torrential rain to complete the programme.—D.



Cattleya Mendell Queen Alexandra.

This chaste variety was exhibited by Messrs. Bull and Sons, King's Road, Chelsea, S.W., at the Temple, where it was much admired. It is extremely beautiful, having a pure white labellum, with the exception of a very pleasing rosy-purple marking in the centre; while the petals and sepals are snowy white, and of good substance.

The Genus Cattleya.

(Concluded from page 512.)

THE TWO-LEAVED SPECIES.

These are not grown in such quantities as those already named, but they include some interesting and useful subjects. Just now *C. Skinneri* is making a nice show, and later we have *C. s. bicolor*, *superba*, *intermedia*, *velutina*, *guttata*, *Loddigesii*, *Grossi*, and *Bowringiana*; while the pretty dwarf *Aclandiae* is seen to advantage when made up into compact specimens and suspended from the roof. The yellow *C. citrina* is best accommodated on a raft, and ought to be grown in the cool house with the foliage pointing downwards. Little soil is needed about the roots, although it is essential that the plants are made secure. The number of *Cattleyas* referred to in these articles by no means exhausts the supply; but the others are of more interest to the botanist and those who make a specialty of species, than to the majority engaged in horticultural pursuits.

The type of house usually chosen for *Cattleyas* and *Laelias* is one with a span roof having both top and bottom ventilators, and built away from the shade of trees or buildings. Plenty of hot water piping and boiler power is needed to prevent a dry stuffy atmosphere when it becomes a necessity to drive the fire. A suitable temperature is one varying from 70deg F. in summer, and 55deg to 60deg through the winter. The minimum stated is intended as the night temperature for the coldest months only; during July and onward it will be proportionally higher.

Cattleyas enjoy all the light possible without injury to the foliage, and at no time must they be heavily shaded, or the pseudo-bulbs will be weak and fail to flower satisfactorily. Ventilation should always be given with due regard to the weather. A free and buoyant atmosphere is essential, and to this end the stages and floors ought to be kept moist by occasionally sprinkling them with the water pot.

So far as compost is concerned, many changes have taken place since broken potsherds formed the bulk of the orchid potter's material. Now, every grower (with very few exceptions) is talking of *Polypodium* and *Osmunda* fibre, which undoubtedly are first rate when the best is procured, and will be used more extensively when their qualities become better known. Either of the fibres mentioned can be used for potting purposes in conjunction with sphagnum moss, but the following mixture is recommended for beginners: Take one of the fibres quoted, lumpy peat, and chopped sphagnum moss in equal parts; then add a sprinkling of broken charcoal or crushed crocks, and a little silver sand. This must be well mixed together, and pressed moderately firm around the base of the plants.

Potting takes place nearly all the year round, especially where seedlings are included; but flowering specimens do not require disturbance every season, in fact, the best spikes are noted the second year after being provided with new soil. The watering must be carried out according to the season and the condition of the growth. For instance, immediately after repotting little water is needed, but as the bulb develops it may be applied in larger quantities, and be again reduced when the pseudo-bulb is fully matured. Scale sometimes attacks this genus around the growing point, and once it gains a foothold only persistent attention to cleaning will eradicate this pest. If these few details are borne in mind little difficulty is experienced in growing this splendid group of orchids to perfection, as a house or division can be set apart for them, which helps the grower considerably.—T. ANSTISS.

Imported Orchids.

In potting imported plants it is better to give rather more drainage than is used for established plants, and smaller pots, as if a plant gets pot-bound it is easily dropped into a larger size without interfering with its growth. Clean pots should always be used, and where large quantities of pots are used a pot-washing machine will be found very useful, as it saves time—and there is not much time to spare just now—and washes pots cleaner than when done by hand. It also makes the boy think he is a bit of an engineer as well as a pot washer, and a boy can wash several hundred, according to size, in half a day.—("The Orchid Review.")

Daffodil Echoes.

In the calendar of the writer, "Daffodil Day," as one of two friends has dubbed it, is a notable one of the year. It is one of the movable feasts, the date of which is regulated not by the moon, but by the influence which King Sol chooses to exert. And this season he determined that it should be somewhat later than usual. On the 9th of May the trio made their annual visit to enjoy an inspection of the great Daffodil collection of C. W. Cowan, Esq., formerly of Valleyfield, Penicuik, N.B., now of Dalhousie Castle, within easy reach of Edinburgh. The event is yearly anticipated with great pleasure, not only because of the Daffodil display, unequalled, so far as the writer can learn, in Scotland, but also of the certainty, begotten of experience, of an urbane and cordial welcome.

It would be impossible, it would also be unadvisable, to attempt anything like an enumeration of the sorts grown at Dalhousie Castle, seeing that everything of any worth is included, from Peter Barr downwards. But, writing from memory, a few of the more outstanding may be noted. The first thing to catch the eye was a large bed of *maximus*, which



Cattleya Mendell Queen Alexandra.

showed that the problem of successfully growing that beautiful but elusive Daffodil had been fairly solved. Adjoining was another bed, at the head of which presided King Alfred, one of the most delightful both in form and colour. Of this there were considerable numbers. Weardale Perfection, Van Waveren's Giant, Hodsock's Pride, and Duke of Bedford are but a few of the host of magnates in attendance on "the King." A large breadth of *Madame de Graaff* was a delight to see. These were in beds in the higher part of the gardens.

Elsewhere in the grass, in the lower ground, was a full assortment of the medium and smaller cupped sorts. *Cygnets*, *Maggie May*, *Lady Margaret Boscawen*, *Lucifer*, *Torch*, *Will Scarlett*, *Peach*, and *The Sisterhood* recur to mind, also masses of *J. B. M. Camm*, *M. J. Berkeley*, *Duchess of Westminster*, *Minnie Hume*, *Lulworth*, *Gloria Mundi*, were in luxuriant profusion. Farther on numerous sorts were planted in the grass, while bold, vigorous clumps lighted up the extensive herbaceous borders. In short, Daffodils were everywhere, and they were apparently none the worse for the ordeal of frost and snow through which they had but recently passed.

Not the least interesting was a batch of seedlings. Of these

one challenged comparison, not unfavourably, with the renowned Peter Barr himself, and others, both selfs and bicolours, were quite abreast of notable established sorts. Such success gives good reason to expect revelations in the development of succeeding years. Much, and that of much interest, might be written of the extensive gardens of Dalhousie Castle, complete in all the equipments of a first-class establishment, and in every respect up-to-date and in faultless order; but this inadequate reference to one of their features must for the present suffice. On the day following our visit the public were to be admitted, as is generously the custom of Mr. Cowan. To him and to his talented gardener, Mr. Pirie, the three pilgrims to a Scottish shrine of Flora renew their grateful thanks.—A SCOTTISH AMATEUR.

Bedding Plants.*

Riding through parks, along boulevards and country roads, speeding in trains through villages and towns, all over the country, passing the magnificent palaces of the wealthy with their beautiful lawns and the humble cottages of the poor surrounded by modest yards, everywhere the eyes meet the brightness of flowers and richly coloured plants, which at once impresses upon us the popularity and universal love for bedding plants.

There is a large variety of these plants, from the smallest annual like *Portulaca*, to the stately subtropical plants, and the perennials must not be forgotten, for they figure greatly in various effective displays. Then we have Tulips, Hyacinths, Daffodils, &c., for early spring flowering. No garden need be without flowers from the time the dainty little *Crocuses* peep out of the snow until late in fall. No matter how small the purse, enough seed can be purchased to obtain a very harmonious and artistic effect, as well as a continuous season of flowers. It is not the means of being able to procure a large amount of choice plants, but it is the good taste and skill of the designer who understands how to make an arrangement to harmoniously and discriminately combine the various colours with immediate surroundings no matter how inexpensive, that appeals to the lover of Nature with all its beauty, and this is what we are striving for more and more every day.

The average florist who deals in bedding plants should by all means give this particular subject thorough study, in order to be able to assist and educate his customers, who in most cases appreciate such advice and instructions in regard to arranging and planting their gardens so as to present a beautiful picture. It requires just as much artistic judgment and ability to accomplish this as to paint a beautiful picture on canvas. The designer must show individuality, and know exactly what proportion the plants will attain, how soon they will be fully developed, also how the colours will blend together; in fact, he must see the finished picture before him when he designs his plans. The sooner we commence to understand how to arrange these beautiful gifts of Nature better, the sooner we make a large majority of the people of our grand nation happier. We have everything to do it with, now let us understand how to do it. To cover the subject best I have divided it into two chapters, as the title of this article indicates:

WHERE TO PLANT.

The proper selection of the place for the floral display is first to be considered; a place where it will be properly effective is just as important as the execution of the planting, as this takes a definite part in the entire scheme. Locality, buildings, and size of grounds must be taken into consideration. The smaller the place, the simpler should be the display; it is easy to overcrowd a small front lawn, whereby the proper effect is entirely lost. Large places in proportion will have more elaborate plantings, and the artist will have occasion to plan special features, such as courtyards, parterres, sunken gardens, Italian gardens, &c.

The front of a building is most always selected for the display, which is generally formal, and, if the space is limited, a narrow border of plants adjoining the building will be sufficient, with perhaps one or two beds on the lawn, proportional to the latter. There should always be plenty of grass to offset the beds. The backyard as a rule is very much neglected, and in many instances unsightly; here I would advocate a grass plot with a border plantation. How much more cheerful one would feel looking into a well-kept yard than at a lot of rubbish.

Places of larger dimensions with their beautiful landscape effects must be treated more in detail. Here we have an opportunity to lay out in connection with residences, conservatories, and public buildings, courtyards, parterres, Rose gardens, &c., which as a general rule are part of the architectural scheme,

and in harmony with the style of the building. In the last few years Italian gardens have again become quite popular, and these, especially set apart from the rest of the landscape, must be treated by themselves; they are very set, and usually contain considerable colour well blended together.

PARKS.

Besides the forms of special treatment already mentioned we also have other flower gardens, which give an opportunity for a larger variety of flowering plants, in the line of annuals, Roses, and perennials, &c., which, properly arranged, make a brilliant effect without interfering with the more subdued and restful landscape. Public parks especially form a great field for floral displays, and, although some authorities on landscape gardening do not favour them, I believe the public fully appreciate flowers. The utmost care must be taken not to let them run wild all over the park; keep them in the vicinity of buildings, or entirely away and screened off from the quiet landscape. Boulevards and small squares can also be most admirably brightened with flower beds.

At the convention in Dayton, O., all our members had the rare opportunity of seeing how the surroundings of a factory can be laid out in a most praiseworthy manner; here our bedding plants brighten daily the minds of thousands of people. Many people are not fortunate enough to possess a home with a lawn and flower beds. There is no necessity for such to deprive themselves of Nature's gifts; they can enjoy them in a more modest way by keeping flower boxes, which, no matter how obscure and unassuming the dwelling, give it a homelike air and enliven the aspect of many an otherwise sombre home. On the other hand many beautiful residences rely solely upon *piazas* boxes for their floral display, and exquisite results can be obtained in this manner.

Finally, a few words should be devoted to the homes of our loved dead. There is nothing more soothing to the grief-stricken heart than the sight of well-kept cemeteries, bedded with appropriate flowers speaking the language of peace and rest. These are some of the many and varied ways of adornment that bedding plants lend themselves to; there still remains another problem to solve—namely, how to use them.

HOW TO USE BEDDING PLANTS.

Here skill in artistic arrangement and harmony of colours is put to a severe test. Starting with the beginning of the season, the various Dutch bulbs are the first to attract attention. They are easily cultivated, and therefore most appropriate for the amateur. Exquisite effects and colour schemes can be carried out, and although their duration of bloom barely reaches more than four weeks, I think they make the most striking display of the season. Only the purest and clearest colours should be selected. Off colours and the peculiar magenta shades are hard to match with pure colours, and are best planted by themselves or far enough away not to detract from others. Mixed beds containing a number of varieties look well, but beds of all one colour show far better taste. Where a number of beds are planned great attention must be given to working out a harmonious colour scheme. Pink, white and light blue blend admirably together, next comes yellow, then red and yellow, and the various reds. It is a great deal more pleasing to the eye to let the colours run into each other by degrees than to create too big a contrast. Colonies of *Crocuses*, *Snowdrops*, and *Scillas*, singly and several together, irregularly scattered on the lawn, look very charming.

Pansies, *Bellis*, and *Myosotis* are also extensively used. Although the *Pansies* come in a multitude of colours, they are mostly used mixed, and often with *Bellis perennis* as a border. Little advantage has been taken of working out colour schemes with *Pansies*, and yet, if we stop to study their rich tints, tints which I think cannot be found in any other plant, the possibilities are wonderful.

Following these come the summer plantings with *Cannas*, "*Geraniums*," *Heliotropes*, *Begonias*, *Petunias*, *Coleuses*, *Acalyphas*, *Abutilons*, *Salvias*, *Verbenas*, and a great number of others too numerous to be mentioned. Almost all bedding plants thrive and flourish best in full sunshine except tuberous *Begonias* and *Fuchsias*, which do best in half shade, where there is plenty of indirect light; other plants, like some of our harder palms, *Phoenixes*, *Latanias*, *Chamerops*, the various fibrous-rooted *Begonias*, like *semperflorens*, *Vernon*, *Schmitti*, and fancy-leaved *Caladiums*, do well under both conditions.

SOIL.

The soil for *Cannas*, *Musas*, *Ricinus*, and *Caladium esculentum* should be very rich; their growth will be so much more luxuriant, while the rest of the plants, like "*Geraniums*," *Begonias*, *Verbenas*, *Salvias*, *Cupheas*, *Ageratums*, &c., also need enriched soil. Care must be taken not to use too much fertiliser, as this will result in disaster; the plants will show an abundance of foliage in place of flowers. Bedding plants, before being set out in their summer quarters, should be properly hardened off, they should be exposed freely to the air and sun-

* A paper read by Alois Frey, Head Gardener at Lincoln Park, Chicago, at the convention of the Society of American Florists, Philadelphia, Pa.

light at least two weeks before the planting season commences. Nothing serves this purpose better than the hotbed, no matter how much some of the growers are opposed to this sort of cultivation. It is true, the cost of labour is somewhat higher, but the superior results obtained fully justify the expenditure made, and plants hardened off in this manner suffer but very little in transplanting.

We have plants of every desirable height, from 2in up to 8ft, some with a wealth of flowers, others again with richly coloured foliage, some with coarser, others with more graceful features. In the arrangement of plantings one great object, which is one of the great principles in landscape gardening, is in many cases lost sight of, namely the consideration of the sky line. Especially in large border plantations this should be applied. Here we have tall plantings broken with lower ones, until they finally run out to very low plants at the edge. In fact, in larger displays, the relation of one bed to the other should be treated this way. While the beds are all more or less formal, they should not appear stiff. Every plant should have plenty of room for full development, and where a number of varieties is used in one bed, the tall ones should not be massed all together, but here and there one should rise above the lower ones, so as to present a loose and pleasing arrangement, while in this manner every plant will show its valuable points more advantageously. For example, a bed planted only with *Ficus elastica* would look very stiff, but intermingled with the graceful *Grevillea robusta* and a border of Ivy, it loses this stiffness and presents a very pleasing effect. This shows that by careful study we can improve the bad points of one plant with the good ones of another.

Particular care should be given to the selection of the various tints, blending richly coloured foliage tastefully with the more gorgeously tinted flowers, so as not to create too big a contrast. Beds of solid colours, alternating with some of less contrast, will tie the entire display harmoniously together, and this will help greatly to achieve the desired plan. It is in the designers power to present a very brilliant or a very quiet picture according to the scheme that is required. Quiet and restful effects are worked out by using tints of various blues, white, and grey, variegated, glaucous, and bronze foliage with a little touch of red. *Anthericum vittatum variegatum*, *Punica granatum pumila*, *Abelia rupestris*, *Heliotropes*, *Plumbago capensis* and *P. c. alba*, *Phygelius capensis*, *Santolina*, and *Abutilon Savitzi* lend themselves well to this purpose. Much more could be said on the subject, but, in my opinion, one runs no risk of failures by adhering to the points laid out in my modest essay.

Summer Bedding Arrangements.

A correspondent enquires for some guidance or suggestions for the filling of flower beds for the summer. It may be useful to him and to others to have some of last year's combinations as seen at Hampton Court recapitulated. We republish, from our own pages, the following:—

What can be done with quite common plants was exemplified where *Salvia splendens* in dwarf bush form was employed with pyramidal *Abutilons Savitzi* and the yellow-leaved grass *Glyceria aquatica fol. aureis*. Though a waterside plant, this grows very nicely in these beds. The white and green-leaved *Phlox Mme. de Jarnac* was also dotted throughout. The same grass (*Glyceria*) with *Fuchsia fulgens*, also a purple *Petunia* and *Maggie Mot Viola*, furnished a pretty bed.

Verbena venosa interspersed with a good white "*Geranium*," and edged with *Echeveria*, commends itself.

A foliage and flowering bed was composed of *Acalypha marginata*, fine specimens, 6ft high; *Lantana salvifolia*, equally tall and full of flowers; *Veronica Andersoni* of the same height, used in about equal numbers over a carpeting of a bright, yellow-leaved dwarf *Coleus*. This is an unnamed seedling *Coleus*, somewhat largely employed at Hampton Court.

Another splendid combination was seen in *Pelargonium Paul Crampel* (crimson) with *Abutilon Savitzi*, edged with *Golden Feather Pyrethrum*, kept cut in, about 8in high and squared.

A bed of *Heliotropes* splendidly developed as pyramids and flowering from top to bottom (6ft), was at once imposing and fragrant. A feature that at once impresses the visitor is the healthiness and the excellently-developed condition of all the bedding plants. It is to the high quality of the subjects, as much as to their effective co-mixture, that the success of bedding belongs. In passing, one might allude to the beginning that has been made in the naturalising of *Colchicums*. These are now flowering in the grass by the side of the canal. The canal, by the way, contains *Nymphaeas*, and is fringed with suitable plants.

Fuchsia gracilis variegata with crimson *semperflorens* *Begonias* and *Koeniga*, was simple and quite satisfactory. The

Koeniga makes much dwarfer plants from cuttings than from seeds; and this is the method of propagation employed.

Gnaphalium macrophyllum, *Fuchsia gracilis variegata*, *Begonia Martiana*, and other almost similarly coloured but more bushy *Begonias*, together with a yellow-leaved *Fuchsia*, were nicely combined, the bed being edged with *Echeveria*. *Fuchsia Marinka* (crimson) was employed with white as a contrast in another bed.

The new *Rose Richmond*, planted the same year, was full of flower again (on September 20), and white *Violas* were employed to carpet the bed.

Warmth of colouring was conspicuous in a bed filled with *Fuchsias Sunday*, bushy plants; *Centaurea candidissima*, and *Begonia Count Zeppelin*, with *Mesembryanthemum cordifolium variegatum* covering all the available ground between.

Lantana salvifolia (*L. delicatissima*) and *L. Drap d'Or*, the latter as bushes, and the former as pyramids, each above a purple-flowered *Petunia*, and edged with *Koeniga*, made a good display.

Two or more of the most effective beds are placed on the parterre. They contained large foliage plants, among which were *Golden Treasure Fuchsia*, columnar in form and 5ft high, exceedingly effective from a distance. Beside it, in admixture, forming a three-deck arrangement, were *Abutilon Savitzi*, *Iresines Herbsti*, *Linden*, and *Verschaffelti* (golden and green); *Veronica Andersoni* and *Acalypha marginata*. All these were well-grown, vigorous subjects. The *Veronias* for a similar bed this year were 1½ft high in September, and were growing on in the pits. The *Iresines*, especially the dwarf *Herbsti*, are planted several together to form a pyramid. The bottom of the bed was mainly filled with *Cineraria candidissima*.

Two of the most charming beds are round in shape, of moderate size, and were filled as follows:—*Begonia Major Hope*, a lovely, rich pink flowered tuberous variety which we saw here in 1906 for the first time. Messrs. Cannell, we believe, introduced it from the Continent. It is as good among *Begonias* as *Paul Crampel* is among *Pelargoniums*, flowering earliest and latest of its kind. To all who are interested in bedding I would say, Try to get this *Begonia*. The beautiful *Glyceria* was also dotted about, and another graceful and effective plant (*Gnaphalium macrophyllum*), with bright silvery foliage. This latter is another acquisition. The late Mr. Chas. Jordan, D.S.O., saw it somewhere in a Continental garden. He obtained cuttings, and gave some to Mr. Gardiner, but both lots failed to strike. A fresh batch was sought for, but unavailingly, but here again Messrs. Cannell were resourceful, and supplied the desired subject. It is a very graceful and pretty thing, and can either be kept low and trailing (by pinching and pegging down), or can be grown into a bush. This bed was edged with *Echeveria*.

Salvia Horminum (with violet bracts)—which was Sir Henry Campbell-Bannerman's favourite flower, as I recently learned—with *Holcus mollis* beneath, formed a groundwork for standard plants of *Abutilon vexillarium* (*A. megapotamicum*). A good strain of well-grown *Cockscombs* was in evidence, the plants being dotted throughout.

Calceolaria Burbidgei was a grand feature of certain of the largest beds. These form pyramids 5ft to 6ft high, and 4ft through. The plan adopted is to strike plants each year, grow them on in a cool house, and plant about a dozen of them around one "old" plant. The "old" plant is one kept over from the previous summer. It dies out, as a rule, in a month or two, while the young ones, growing up all around from its base, keep up a fresh and vigorous supply of flowers and foliage.

Fuchsia Mme. Corneilson (white petals and crimson sepals) formed orbicular masses of blossom. These bushes were 2½ft to 3ft high, and below were *Viola Duchess of Sutherland* (mauve), and the ruddy-chocolate leaved *semperflorens Begonia Triomphe de Lorraine*. *Ophiopogon* (*Liriope*) *jaburan variegata* was also interspersed.

Market Gardening Notes.

STRAWBERRIES IN POTS FOR LATE CROPS.

Calling at Wrotham Park, Barnet, a very fine batch of plants, as layered from the runner to the fruiting pot, were still out in the open, plunged in ashes, but ready to go indoors. These come in just before the outside picking. Inside, the successions were following up. Mr. H. Markham informed me that three pickings had been taken from the plants now in fruit, which had realised the top price in Covent Garden Market—8s. per lb. *Royal Sovereign* is the variety; none to equal it for crop, size of fruit, and flavour.

RYTON MUSCAT GRAPE.

This is looking well, and is a much easier doer than the original *Alexandria*. It grows well and sets freely in the lower temperature, all points in favour for the market man.—STEPHEN CASTLE.

NOTES & NOTICES

The N.R.S. Shows.

The fixtures of the National Rose Society are as follow:—July 8, the Metropolitan exhibition; July 21, the Manchester exhibition; September 17, the autumn show.

R.H.S. Committees at Windsor.

The members of the Royal Horticultural Society's committees visited Frogmore Gardens, Windsor, on Wednesday last, June 10, the day being warm and fair, and spent a most enjoyable time. Some notes of the visit will appear in our next issue.

Horticultural Club.

The next house dinner of the club will take place on Tuesday, June 23, 1908, at 6 p.m., at the Hotel Windsor. Mr. H. Hitchcock, of Victoria, Australia, has kindly promised to talk about "The Development of Gardening in Victoria during Recent Years."

Royal Meteorological Society.

An ordinary meeting will be held in the rooms of the society, 70, Victoria Street, Westminster, S.W., on Wednesday, June 17, 1908, at 4.30 p.m. Papers to be read:—1. "An Elementary Explanation of Correlation: illustrated by Rainfall and Depth of Water in a Well," by R. H. Hooker, B.A., F.R.Met. Soc. 2. "The Hong Kong Typhoon, September 18, 1906," by Lawrence Gibbs, Assoc.M.Inst.C.E.

Flower Gardens on a Liner.

The "Rotterdam," the newest vessel of the Holland-America Line, left Southampton on Saturday for Rotterdam, previous to making her maiden voyage to New York. She is the heaviest vessel afloat, her gross tonnage being 25,000, and she has accommodation for 3,535 passengers, while the crew consists of 475 men. Many striking features have been introduced, the most novel of which is the palm court. Here, says the "Daily Chronicle," flower beds, palms, and ferns abound, and the centre of the court is surmounted by a majestic dome of stained glass. The number of bath rooms in the first cabin section alone exceeds 100, while the two spacious dining rooms for the third class passengers comprise 6,230 square feet of floor space, enabling 581 persons to be seated at the same time.

May Weather at Desford, Leicester.

The total rainfall for the past month was 2.01in. This fell on twelve days, the greatest quantity, 0.31in, on the first. The temperature has been above the average, the mean for the month being 56.5deg. The nights have been warmer than is usual for May, the thermometer recording the lowest temperature on the 11th, when it was 36deg, on four other occasions only has it been less than 40deg. The hottest day was the 27th, when it was 85deg. There have been many sunny days, and even dull cloudy days have been warm, so that vegetation has gone forward without a check, and is much earlier than was to be expected. Fruit prospects are rosy, Apple and Plums looking well where spraying has been regularly done. If otherwise, there is much aphid and caterpillar, which will materially affect the crop.—L. D.

Notes from Wroxham, Norfolk.

Notwithstanding the untoward nature of the spring, everything now looks in an advanced state, and if ordinary weather shall be forthcoming, things in general will not be so late as at one time anticipated. Outdoor sown Sweet Peas will not be so early as last year. Fruits of every kind are carrying promising crops; Strawberries are specially heavy. Garden crops are looking well, chiefly, no doubt, on account of so much moisture. The heat wave of last week, with its concomitant thunderstorms, gave a great impulse to growing crops. But apparently the wave has spent itself, for now, and since Friday last, we have a cold wave. Saturday was miserably cold, with a high north wind blowing all day. The temperature fell 30deg below the maximum of the previous week. Trees and many other tender things have been damaged with the high wind. The hay crop of the district is a heavy one.—D. C.

Messrs. Waterer's Rhododendrons.

The annual extensive exhibition of Rhododendrons, arranged for effect and planted in great mounds, was yesterday (Wednesday) opened in the Royal Botanic Gardens, Regents Park, N.W. The show is under a huge marquee, covering half an acre, and continues open for some time yet.

The Franco-British Flower Show.

The second horticultural exhibition arranged by the Franco-British Exhibition authorities (the first one was abandoned), will be held at Shepherd's Bush, London, June 24 to 26. It promises to be successful. Applications should be made to the Exhibition Office, Shepherd's Bush.

R.H.S. Gardens Guild.

The first annual general meeting will be held on Wednesday, July 8, at 7 p.m., in the Charles Dickens Room, Carrs Restaurant, Strand, W.C. It is particularly hoped that all who have at any time been students or employees in the R.H.S. Gardens at Chiswick or Wisley will endeavour to be present, and will give early notice of their intention to the acting hon. secretary, Mr. R. Wallis, R.H.S. Gardens, Wisley, Ripley, Surrey.

Forced Bulb Show.

In connection with the special prizes for Hyacinths and Tulips to be competed for on Tuesday, March 9, 1909, at the Royal Horticultural Society's hall, the council would be glad if this date could be made a general one for the exhibit of collections of forced spring bulbs, specially with a view to showing which varieties (of Daffodils, for instance) are best suited for forcing. The council invites the exhibition of small collections from amateurs as well as from the trade.

May Weather at Belvoir Castle.

The prevailing direction of the wind was S.W.; total nine days. The total rainfall was 1.79in; this fell on fifteen days, and is 0.40in below the average for the month; the greatest fall was 0.41in on the 6th. Barometer (corrected and reduced): highest reading 30.549in on the 28th at 9 a.m.; lowest reading 29.334in on the 6th at 9 a.m.; mean of 9 a.m. and 9 p.m. readings 29.979in. Thermometers: highest in the shade 74deg on the 31st; lowest on the screen 36deg on the 23rd; mean of daily maxima 63.61deg; mean of daily minima 45.67deg; mean temperature of the month 54.64deg, which is 4.66deg above the average; lowest on the grass 31deg on the 23rd; highest in sun 130deg on the 17th, 27th, and 28th; mean temperature of the earth at 3ft 48.83deg, which is 0.23deg below the average. Total sunshine 213 hours fifty minutes, which is thirty-two hours forty-seven minutes above the average; there were two sunless days.—W. H. DIVERS.

Books on Gardening.

A selection of books from the extensive class of literature which the Croydon Public Libraries possess on gardening and allied subjects was carried out recently with a view to rendering the exhibition useful and interesting alike to amateur and professional gardeners, and to the readers of garden books. A circular issued by the librarian says, "Of the allied subjects only a few of those more closely connected with gardening can be represented in consequence of the limited space at disposal. Visitors will observe the distinction made between books placed in the lending and reference libraries; all practical manuals and works likely to interest the general reader have been placed in the former department, while for the latter have been reserved only works of a quick reference nature, or those which are too bulky to be portable. Attention is drawn to the large number of practical recent manuals on gardening for pleasure and profit contained in the lending libraries; while these are too numerous to allow mention of any individual book, we may perhaps mention the series of 'handbooks on practical gardening,' devoted to particular features of the garden, some to individual and some to special flowers, fruit, and vegetables, while others deal with garden management. Lovers of orchids will not fail to notice the splendid illustrated folios on this subject, especially the magnificent edition of Sander's 'Reichenbachia.' The most extensive divisions are those of flowers, and trees and forestry, while considerable space is devoted to fruit growing. Lovers of the garden books of Miss Gertrude Jekyll should consult her 'Some English Gardens,' and contrast it with Triggs's 'Formal Gardens in England and Scotland.'"

Azalea rosæflora.

This (which in garden nomenclature is an *alias* of *Rhododendron indicum* var. *balsamæflora*) is a dwarf variety which has proved quite hardy in the country. The colour of the flowers is a pleasing salmon-pink shade, in form almost like a rosette. The flowers last for a considerable period on the plants, and also stand well when cut. In the formal American, or Italian gardens it is a valuable subject for a small bed. As a pot plant for conservatory and room decoration *A. rosæflora* is very useful. At the recent Temple Show small plants, similar to the one illustrated, were very much in evidence. The above was photographed in Messrs. Backhouse's group. It is not by any means a new plant, but an old introduction from Japan, the value of which has only become generally recognised during the last few years. Most of the plants flowering in this country have been, I believe, imported from Belgium, where it is grown very extensively. There the plants are grown in leaf mould, with us they thrive better in a compost of two parts sandy loam (almost, or entirely, free from lime), and one part peat. Fairly firm planting is advisable, but on no account must the balls of the plants be placed too deep or failure will follow.

Waterside Plants.

The very interesting work of planting by the waterside, however small, should fall into two different classes, according to the size of the ground dealt with. In small, choice bits of water in a garden we can be very careful to keep everything trim and free from weeds, and can put our choicest plants there; but where the water spreads out into large pools, or we work on the bank of a stream, we cannot be so particular, because the labour would be excessive. In that case we must trust to native plants to a great extent, and the more hardy exotics, such as the bolder Irises and *Spiræas*, the Sweet Flag, and the large Knotworts, says "Gardening Illustrated." It is astonishing how much the introductions of the past thirty years have helped us with good plants for the waterside, such as the Japanese Irises, and for the water itself the splendid group of coloured Water Lilies. The Pampas grass (*Gynerium argenteum*) and its early-flowering companion, *Arundo conspicua*, from New Zealand, may also be mentioned as graceful plants for near water. Much dwarfer, but also effective, is the tall grass, *Elymus glaucophyllus*, with broad, glaucous foliage, contrasting well with the fine deep green foliage of *Carex pendula*. *Cyperus longus* is another suitable companion from the same family. *Juncus effusus spiralis*, with its stems twisted like corkscrews, is more curious than pretty, but *Acorus gramineus variegatus* and *Juncus zebrinus* have an uncommon, as well as a pretty effect.

The plants just mentioned as suitable for the waterside are valued mostly on account of their foliage. But among flowering plants also may be found handsome varieties, that might with great advantage be used for decoration at the waterside much oftener than is at present the case. Few things are brighter than the brilliant purple flowers of *Lythrum salicaria roseum*, or the large yellow flowers of *Inula Helenium* and *Telekia speciosissima*. Groups of *Iris Kämpferi* and the well-known *Iris Germanica* also look exceedingly well on the margin of a pond, and the royal fern (*Osmunda regalis*) delights in that position. A similar position is required by *Spiræa gigantea*, which bears its flowers on stems 6ft or more high. *Spiræa Aruncus*, though not so tall, is, nevertheless, suitable, as are also its smaller, but still more handsome companions. *Spiræa palmata*, *Astilbe rivularis*, and *A. Davidi*. The Globe-flowers (*Trollius*) show by the waterside a vigour they do not develop elsewhere, and there are some fine varieties and colours among them now. This might also be said of the double Marsh Marigold (*Caltha palustris* fl.-pl.) and of several varieties of *Hemerocallis*. For a shady nook by the waterside we are by no means limited to ferns. It is in such a position *Primula japonica* delights.

Saxifraga peltata, *Sanguinaria canadensis*, *Podophyllum Emodi*, the handsome *P. peltatum*, *Rodgersia podophylla*, *Trillium grandiflorum*, and Solomon's Seal will be seen at their best by the water. But of all the plants we know for effect near water the palmate bamboo is the finest evergreen. It is, however, such a free grower that it must be kept as a group apart. For beauty, and a rival to the wild waterside Iris, there is the lovely *Iris aurea*, with its golden lances. There is also an improvement on the wild yellow Iris, a form called *Bastardi*. For rough open watersides, the tall Knotworts (*Polygonum*) are as right as they are wrong in the garden proper.



The Wichuraiana Roses.

It is not out of place to bring before the reader the great claims of the Wichuraiana Roses, a class coming more and more into favour. The uses of these Roses are numerous, and there are yet many gardens where their inclusion would give a distinct feature to the place, and give the keenest delight to their owner and his or her friends. The original parent of the class is that known as *Rosa Wichuraiana*, a Japanese species with small white flowers, which possess almost the sweetest fragrance of all Roses we know in a wild state. It is a different scent from that of many, partaking more of that of honey than any other with which I am acquainted, but without the peculiar odour which renders that product of the bee obnoxious to many. Call the attention of anyone unacquainted with this Rose to the scent, and they are at once impressed by its delicious perfume, one they little expected to find from such a small and unassuming blossom.

The flowers of this Rose are small indeed, and rather starry in form in many examples, but seedlings vary to some extent, and the blooms of some seedling plants are much more rounded in outline than those of others, while some depart from the normal colouring by the possession of a slight tinge of rose at the edges of the petals. The white flowers are brightened



A hardy Azalea (*A. rosæflora*).

by the golden anthers, and the whole flower is made more beautiful by the glossy foliage which composes its leafage, and which is in itself so beautiful. Trailing on the ground; clambering up a pillar, trellis, or wall; or rambling up a tree and depending its flexuous branches therefrom, the whole effect of this wild Rose is very beautiful; while its late blooming season, even until after frost has come, and its almost evergreen foliage, give it charms which would delight many.

Yet it is as the parent of a new race of garden Roses that we most appreciate the Wichuraiana Rose, for the skill of the hybridiser has been turned to good account, and from this wild Rose of Japan we have been favoured with many lovely flowers—far surpassing the parent in garden value, and ennobling our pleasures with visions of beauty. Since the first introduction of these hybrid Wichuraiana Roses from America some years ago, few, if any, years have elapsed without some noteworthy addition to this class, and it would occupy too much space to detail these varieties or their origin. It may be stated, however, that we owe the greater number of these flowers to United States and French raisers, and that in their production some of the beautiful tea and hybrid tea Roses have generally been employed. The endeavour has been to secure, with the charming habit and foliage of the Wichuraiana, the colouring and the prolonged bloom of the other sections; and this, to a large extent at least, has been achieved, so that now we see these

lovely Roses in the best gardens, where this incomparable flower receives due recognition, and where the owner is not wedded to flowers for exhibition.

It is to the spread of the taste for informal gardening that these Roses owe their popularity. They lend themselves perfectly to the picturesque side of gardening, and one meets with many examples of their excellence when utilised in this phase of the art. Those who have seen a rough bank covered with *Rosa Wichuriana* or the best of its hybrids, or some grassy knoll planted with it, the long branches trailing among the grass, and here and there showing above it the shining leaves and the clusters of flowers, will admit its beauty in such a place. And yet there is a more excellent way, and that is to use these Roses on pillars, on trellises, or over arches, for which they are still better suited than for walls. They are admirable pillar Roses, as they will reach a good height in a short time, when they can either have their longest shoots shortened, or have them brought over in fountain shape to charm the onlooker with their hosts of flowers. On an arch, too, they are perfection, especially if it is a high one, as then some of the branches can be allowed to drop from the top of the arch, forming a flowery and leafy screen of the highest



A Temple group.

beauty. On trellises also they are exquisite, and, allowed to thread themselves in and out among the branches of some old tree, the wreathed flowers and pliant branches adorn any garden with the most perfect beauty.

All this is done with but little aid from the gardener. Planted well to begin with, the holes made large enough so that the roots may be well spread out in manured soil, and firmly attached to their supports, these Roses will grow apace, and their subsequent cultivation will be confined to simple training, occasional shortening of growths which are too long, cutting out old and weak wood, and an occasional watering with weak liquid manure. With these supplied, they will go on for long, and a little fresh soil and well rotted manure added about the roots will help to keep them in vigour and beauty to the delectation of the lover of the Rose.

In speaking of the varieties the danger is not that our choice is too limited, but rather that it is too great for its satisfactory exercise. So many "dear charmers" now offer themselves that the danger is that we may overlook some beautiful variety. One must, therefore, name a few, with the proviso that one is not to be held as saying that these are the best, and that others are inferior. Some of the single forms are very beautiful, and a free-growing one, called *Pink Roamer*, is not yet superseded, but it is finer in partial shade than in sun, the colouring being more intense than in full light. The whitish centres also show better in the shade. An indispensable

single flowered one is the exquisite *Jersey Beauty*, with beautiful shiny foliage and large single flowers, which open pale yellow and pass off creamy white—a lovely pillar or pergola Rose. A very beautiful one is *François Foucard*, with lemon flowers, which are semi-double; and some admire the pretty *rubra*, which has flowers of a deeper shade than those of *Pink Roamer*, more, indeed, of a scarlet. But those with double and semi-double flowers are more lasting, and will be the most serviceable in the garden, although the others ought not to be banished from its precincts. The two *Barbiers*—*Alberic* and *Auguste*—are both beautiful, *Alberic Barbier* having sweetly tea-scented yellow flowers, and those of *Auguste Barbier* having creamy-white blooms. *Carissima*, which has imbricated flesh-coloured double flowers, is a favourite; but I find hardly any to surpass the lovely *Adelaide Mouille*, whose bunches of double lilac-rose flowers with their carmine centres last so long and look so beautiful on a pillar. Nobody can well afford to be without *Dorothy Perkins*, although some prefer *Lady Gay*, which is not, however, so continuous in bloom, although, perhaps, rather earlier. The pink flowers of both are very beautiful. *Réné André* is another favourite, with its saffron yellow buds and its pinkish white, carmine-veined blooms in great profusion.

Other excellent varieties are the following:—*Alexandre Trimouillet*, lilac-rose and carmine; *Edward Proust*, coppery carmine; *Elisa Robichon*, semi-double, pale yellow; *John Burton*, peach; *Leontine Gervais*, coppery red, beautifully tinted; the pretty *Wedding Bells*, white and pink; while indispensable nowadays is the charming *Hiawatha*, with deep crimson flowers, shading to white at the base, a lovely single flowered variety, which has leapt into favour from the time of its appearance at one of the Temple Shows. There are many more, but these will suffice for the purpose of selecting from among them varieties which will give the garden the effects which such Roses can yield with such freedom. Their hardiness is unmistakable, and in cool gardens they are excellent in every way.—*Stb Rosa*.

Aphides.

(Concluded from page 497.)

CHERRY APHIS.—The Cherry aphid (*Myzus cerasi*) is sometimes found on Currant bushes, but generally confines its attacks to the Cherry, seizing on the points of the shoots and causing them to twist, curl, and blister in a very remarkable manner. The growth is thus entirely arrested, and the affected parts turn brown and black, and die. The devastatory work begins soon after the unfolding of the buds in spring, and in bad cases the blossom and young fruit are also affected, especially under glass. The aphides are black and shiny, clustered on the points of the growths, and under curled and contorted leaves. The life history of this—other species of aphides infest the Cherry—is very similar to that of the Currant aphides. The young hatch from the little black eggs deposited in the previous autumn by the oviparous females, and soon develop the viviparous character of the aphides. Anon, winged viviparous females are produced, which fly off and form colonies of wingless viviparous continuations of the insects, and generally on the young leaves at the points of the shoots, where they soon arrest the growth and give the affected part a blackened club-like appearance, very conspicuous on the plants. In July or August winged examples appear, and these fly off to other plants and there deposit living young. Towards the end of the year, males as well as females are produced, and these may be winged or wingless. These females, after being fertilised, deposit eggs at the base of buds and on the stems, and thus pass the winter, and in spring hatch into the larvae that, when adult, produces living young without the agency of the male, and can themselves produce living young. This viviparous reproduction can go on for many generations where only females are present, even in the wingless state, as occurs with brown Peach aphid (*A. persicæ*) under glass.

Such may be taken as characteristic of the aphides infesting fruit bushes and trees. It may also be said that all are provided with a mouth used for sucking, and capable of piercing the structures of plants, upon the sap of which they feed. They undergo what is termed an incomplete metamorphosis; that is, there is no quiescent chrysalis or pupal stage, and they feed throughout their whole existence.

The damage done by aphides to fruit bushes and trees is: 1. Sucking out the sap and so weakening the vitality of the plant, inducing contortion, twisting, curling, folding, and stunting of the shoot and leaf development. 2. Interfering with the functions of the foliage, by blocking up the stomata (or breathing pores), or rendering them useless by the puncturing of the cells, and by overspreading subjacent leafage or fruit with their excreta—the "honeydew." This is passed through cornicles or tubes. Some, however, have no cornicles situated in the back; instance, the woolly aphid (*Schizoneura*

lanigera). 3. By the punctures and the excrementitious matter of the aphides, fungus pests are encouraged through the free openings for their germinal tubes, by spores alighting thereon. The mycelium in some instances passes from a saprophytic to a parasitic mode of life. Fungi also sieze upon and luxuriate in the "honeydew." They certainly prevent the chlorophyll from developing in the leaf, as seen by the pale yellow colour underneath the black overgrowth of the epiphytal fungus.

PREVENTION AND REMEDY.—Infection, as we have seen, is by eggs or winged viviparous females. The thing, therefore, is to prevent infection. This seems practically impossible, for the simple reason that the self-same species that infect cultivated trees are found on wildlings, consequently it is more a matter of repression than prevention.

1. The eggs may possibly be, to some extent, destroyed by the caustic alkali wash so much in vogue, and of which that known as the Woburn wash, given in the *Journal of Horticulture*, January 31, 1907, pages 96 and 97, is probably the best to use as an insecticide and fungicide combined. But what adds eggs better than the old-fashioned lime and salt wash, formerly used for destroying overgrowths of lichen and moss? Of the exact proportions of these to use I do not remember, but generally a good handful of salt to a bucket of water (three gallons), and as much quicklime as would form a thin wash. Probably the proportions named by Mr. Spencer Pickering as that of Mr. Chapman's lime and salt wash, namely, twenty per cent. lime and three per cent. salt, would be safe and effective.

2. The aphides must be destroyed on their first appearance. Paraffin emulsion (paraffin softsoap and soluble paraffin) is an effectual remedy, only the insects must be reached in their "nests" on the underside of the leaves. In the case of shoots within reach, it is good practice to dip them in the solution and gently rub them with the fingers. The various proprietary preparations compounded of softsoap and nicotine are singularly effective against aphides, as the soap clings to their shining bodies, clogging up the breathing pores; while the nicotine helps in the destruction, and renders the feeding disagreeable for some time. The great thing is to reach the aphides, and to follow up the treatment till the infested bushes or trees are cleared of the pests.

3. When aphides are allowed to multiply on bushes and low trees, so that the tips of their shoots are contracted into miniature mops, the best plan is to take a galvanised pail, smeared inside with paraffin oil, and containing a little, and cut off the contorted points boldly and place them in the pail, and afterwards burn them. Thus the main of the infection will be cleared off, and a good spraying with an insecticide will make a clearance. It is worse than worthless for cultivators to rely on ladybirds and other beneficial insects. Prevent the increase of the aphides as soon as they appear.

The summer pruning outlined for the riddance of aphid-affected growths is much older than I can remember, and certainly has no deterrent effect on the formation of blossom-buds for the succeeding year's crop. Indeed, in the case of trained trees and those restricted to space it is a necessity.

In winter, as soon as all the leaves are off the tree, ammoniacal liquor from gasworks, diluted with three parts water and applied with a brush, will clear the parts above ground of woolly aphis is duly reached; while a solution of the same article, five parts water and one part ammoniacal gas liquor, applied to the soil over the roots, kills any aphides on the roots. Of course, ammoniacal liquor cannot always be had, or is inconvenient to obtain, therefore a good winter wash may be used for freeing the above-ground parts, and for the roots a good soaking of strong liquid manure makes matters unpleasant for the subterranean invaders. Kainit, hoed in round the roots, is said to have been found efficacious in Canada, but there is not, as a rule, much to dread from woolly aphis as a root infection in Britain, such attacks being very exceptional. —T. R.

Carters at the Temple.

Messrs. Carter and Co., the King's seedsmen, High Holborn, London, arranged a very pretty group of Begonias, Schizanthuses, Gloxinias, Carnations, Petunias, and other greenhouse flowering plants at the Temple Show, upon which we reported in our issue of May 28. By means of a little photograph we are able to show a glimpse of part of their group, with its elegant and gilded arches, upon which Smilax was trained. A novel and much admired feature was their hanging baskets of the Schizanthuses, this being a method of cultivating these "Butterfly flowers" which admirably suits them. The display was notable for the merits of the various plants no less than for good arrangement.

Trees and Shrubs.

Catalpa syringæfolia pulverulenta.

A quantity of well-grown, single-stemmed young plants of a very prettily mottled variety of *Catalpa syringæfolia*, all in 5in pots, were staged in Messrs. Paul and Son's group (from Cheshunt, Herts.) at the Temple Show. We secured a representation of one of these plants, and in reference to this subject Messrs. Paul and Son have written as follows respecting this new form:—"This is a fixed sport from *C. syringæfolia*, which originated here. It appears perfectly constant and does not seem to burn. The older leaves are silver spotted; the younger, towards the top, more gold. It should make a fine ornamental tree or a pot plant in the young stage. It is not yet in commerce."

Bush Ivies.

Ivies grown in pots in bush form are now quite popular. There is something in the name of Ivy, observes Mr. Meehan in the "Florists' Exchange," that strikes one favourably, associated as it is in so many ways with olden times. The bright green of the leaves of the plant renders it acceptable for use in so many ways when pot grown, and when so grown, with care in pruning it from time to time, the shape can be



Mottled-leaved Catalpa.

made almost any one desired. As the berries of the Ivy are not unattractive, it will interest many to know that these bush Ivies flower and bear fruit very early. Little bushes of but a foot or two in height will have berries on them. The bearing of berries by these plants is in accordance with the law for many vines. When there is nothing to cling to, the plant loses heart in endeavouring to grow in that way. It gives attention to fruiting instead. Wistarias, Bignonias, and other vines are often seen full of flowers when in bush form, a result that would not have occurred for years later had they been planted to a wall or tree where there was ample scope for them to ascend.

Prunus triloba flore-pleno.

What a beautiful object this double flowering Chinese shrub is, when the branches of a well-developed individual are wreathed with the lively rose-pink blossoms. The typical single flowering form is a rare inhabitant of gardens, but the double flowering variety has been quite extensively disseminated by some nurseries. It is, unfortunately, liable to attack from that fatal blight which victimises a number of Chinese and Japanese shrubs and trees. Everyone who loves beautiful hardy flowering trees and shrubs, should plant this double flowering Plum, if they are not already in possession of it, and if it fails with them in a few years time, try it again. If we should give up attempting to grow this or that, because it is liable to be attacked by some fungoid or insect scourge, we would probably lose a great many of the enjoyments of horticultural life. *Prunus triloba flore-pleno* usually flowers from the beginning to the middle of May, and the flowers are mostly in advance of the leaves.

Hardy Plant Notes.

Viola cucullata or *obliqua*.

This is a handsome Violet, but has one defect in the shape of a frequent tendency to hide its blooms among its leaves—a decided fault in a garden flower. At the same time, it may be forgiven this because of the general pleasure given by the plant, which grows from five to ten inches or so high, and makes a pretty plant with its heart-shaped leaves and its good sized flowers, which come in early summer, and are of a deep cobalt blue, some varieties being prettily streaked with white, and others practically white. It is one of the scentless Violets, and this will, in the minds of many, constitute a grave defect, although shared by many of the members of the genus. It will grow in common soil, but should not be too dry at the root.

Aubrietia Bridesmaid.

Bridesmaid is a very beautiful *Aubrietia*, which has soon acquired a good place in the affections of the lovers of these pretty spring flowers, without which no garden can be said to be well furnished. It was raised, I believe, by Messrs. Barr and Sons, and many people have been attracted by its soft-coloured flowers, which are of a shade difficult to describe except as of a warm blush. "Delicate rose" is another attempt at description, but both alike fall short of the precise meaning we wish to convey. It is earlier flowering with me than *A. Moerheimi*, and it is considerably lighter in shade than that fine *Aubrietia*, so that both may well be included in a garden where the best spring flowers never come amiss. It is as hardy as any of the other *Aubrietias*, and now that it is more plentiful might be more largely planted.



A bed of Forget-me-nots.

The Balearic Sandwort.

It is a little surprising that the little Balearic Sandwort, *Arenaria balearica*, does not increase even more in favour than it has done within recent years. We have nothing which will take its place for covering large stones, such as we find on rockeries, or the rough stone steps of rock gardens, but it has no liking for hard, non-porous stones, and I find that it delights more in sandstone than any other against which I have tried it. Last year I set two small plants, each at the base of some stonework of a pathway, and this spring they have already covered a wonderful portion of stone. The plant which faces to the south has flowered earlier than that facing north, and the first was fully in bloom by the middle of April, while the other was only showing a very few of its starry white flowers by the end of the month. It likes moist stones, but on these the winter is sometimes hard upon it. Such a charming little flower, hardly rising above the ground and covering the stone with a dense carpet of small green leaves, starred all over with dainty white flowers, should be prized by all who can care for simple beauty.

The Calabrian Soapwort (*Saponaria calabrica*).

Among the cheap but useful annuals for those who want to have good effects in the way of edgings or small beds, we must give a high place to the old-fashioned, but indispensable, *Saponaria calabrica*, the Calabrian Soapwort, which must have been long grown in northern gardens as well as in those of the sunny South. In the days when annuals were more in demand than now, it was a popular bedder, and I can yet recollect some bold effects at a country railway station, where bedding with annuals was in vogue, with this and other cheap and easily grown subjects. It is a splendid plant for an edging, and a row, sown thinly in well-manured soil, will be very pleasing in

late summer and autumn, especially if the border is not too dry and the plants are supplied with water during a drougthy time. As an edging for a flower bed in the grass it is excellent, and it appears to me to look always better next grass than beside a gravel path. The seeds should be sown very thinly, and the plants well thinned out as soon as they can be properly handled, repeating the thinning a little later. As the Calabrian Soapwort is a hardy annual, it can be sown in the open where it is to bloom, from March onwards, according to the district. In the south earlier sowing is necessary than in the north, and last year late sown annuals did not do so well as those which were in the ground in early March. There are three or four varieties of this Soapwort in the trade. The type has good rose coloured flowers; that called *alba* has neat white blooms, but I have found occasional "rogues" in the shape of rose coloured flowers among the stock. The finest of the three known to me is that called *Scarlet Queen*, which, although not well described by its name, is of a more effective colour than the type. Seeds of this annual can be bought cheaply by the ounce, and are of such small size that an ounce will cover a considerable length as an edging. It is only about 6in high.

The Bergamot or Bee Balm.

Among the many valuable border flowers which we owe to North America must be ranked the Bergamots or Bee Balms, of which *Monarda didyma* in its several varieties will be found the most useful for the average garden. As border flowers in their season they give the garden something apart from all other plants of their time, and their handsome heads of flowers in

whorls and their fragrant foliage combine to give pleasure to the owner and his friends. The long succession of flowers yielded throughout the summer months gives these plants an additional claim upon us, so that no garden can well afford to be without them. Their cultivation is comparatively easy, but they are not a success in poor and dry soils, and in such cannot be commended for longevity; while in a heavy and somewhat moist one they are much more reliable in every way. Those, therefore, who have a dry and light soil will be well advised if they plant the *Monardas* in the heaviest and moistest part of the garden, and in such there is every prospect of its

doing fairly well if attended to in the way of water, and if some good manure is added annually to increase their vigour. Of course, in such a place the plants will not attain to the full vigour and stature they reach in more congenial quarters, but they will generally attain to a height of 2ft or a little more against the 3ft they will reach in heavy soil.

As already indicated, the best of the Bergamots are the forms of *Monarda didyma*, the type of which has whorls of bright crimson flowers and scented foliage. It is a handsome plant of a moderate price, but is easily surpassed by what I consider the best of all the forms—that known as Cambridge Scarlet, which has good dark, sweet-scented leaves, and exceedingly brightly coloured scarlet flowers. It has long been recognised as one of the best, if not the very best, of all the *Monardas*, and some cultivate it to the exclusion of all others. Another good variety is that known as *M. kalmiana*, a robust and tall variety with deeper crimson flowers, and one which might well be added to large gardens in addition to its sister just mentioned. Still another good one is *splendens*, also with deep scarlet flowers.

Those who welcome changes of colour in their border flowers may appreciate *M. d. rosea*, which, although not a perfect novelty, is but little known. It has rose-coloured blooms, and makes a nice variety. Still another is *M. d. violacea-superba*, a good Bee Balm, with flowers which are more purple than those of any of the others. In addition to the varieties of *M. didyma*, some of the forms of *M. fistulosa* have been grown in gardens, although but few of the forms of this rather variable species are in commerce. By way of a contrast to the others, *M. fistulosa alba* might be added, as it is practically the only white *Monarda* in the market. Still, I do not think it is ever likely to make headway to such a degree that it will oust any of the others or become a favourite plant.—S. ARNOTT.



Dimorphotheca aurantiaca.

One of the most interesting of novelties exhibited at the Temple Show was one recently introduced by Messrs. Barr and Sons, from Namaqualand, belonging to Compositæ. It is a half-hardy annual, and requires the same culture as other half-hardy annuals, viz., sown in gentle heat in March or April, or out of doors during May and early June, in a sunny position. The dazzling apricot-orange flowers of *Dimorphotheca aurantiaca*, with glossy surface and black central disc, are very pleasing. It grows from 3 in to 1 ft high.—W. L.

The Value of Forget-me-not.

The accompanying view of a large round bed of conifers, surfaced with Forget-me-nots, by no means presents the scene as it appeared in its living, natural state. This pretty picture may be seen toward the end of May and early in June at Kew Gardens each year, the Forget-me-not thus used being our common wood variety, *Myosotis sylvestris*. This seeds freely, is perfectly hardy, will grow anywhere, rises to a height of about 1 ft, has very bright pale blue flowers, and furnishes a truly remarkable effect when massed in some quantity. The bed here shown, when at its best in the third week of May, draws crowds of visitors from far parts of the grounds when they catch a glimpse of the hazy blue wreath under the dark Firs. Following on come Phloxes and Hollyhocks.

Manuring Potatoes.

The most profitable mixture, along with a 10 or 15 ton dressing of farmyard manure, is 1½ cwt sulphate of ammonia, 4 cwt superphosphate, and 1 cwt or 1½ cwt sulphate of potash per acre. An Irish prescription is, 1 cwt sulphate of ammonia, 4 cwt superphosphate, and 1 cwt sulphate of potash or muriate of potash, in addition to 15 tons of farmyard manure. Moderate crops can be grown with farmyard manure alone, or with artificials alone, but where practicable both should be used in the quantities mentioned. On both sides of the Channel sulphate of ammonia has given better results than nitrate of soda, and superphosphate has been superior to dissolved bones, while sulphate of potash has had a more beneficial effect than either muriate of potash or kainit in England, although in Ireland the muriate was equal to the sulphate of potash. Both reports are averse to heavy dressings of artificials, and in the Kingston trials 4 cwt of superphosphate was more profitable than 6 cwt.

Golden Forms of Arbor Vitæ.

The prettiest golden Arbor Vitæ of the *Thuja occidentalis* type is without doubt the one called George Peabody. Its foliage is nicely edged with gold the whole season through, and it is particularly pleasing to look at in late spring, just as its new growth is well formed. There are other golden sorts, as well as some variegated ones, but they do not keep their character so well as the George Peabody, some of them, in fact, almost losing their differing tints at some seasons of the year. The George Peabody has to its credit, too, that it is of the beautiful pyramidal conical shape many of the common Arbor Vitæ possess, being well filled out in all its parts. Leaving this section and considering that of the Chinese, the Rollinson's golden leads all others in its desirability. There is no time of the year that it is not good to look at. The colour is a bronze yellow, and this colour is more intense when the sun has full play on the foliage. It is of much more compact form than the common Chinese Arbor Vitæ, *Thuja occidentalis*, while retaining the somewhat flattened outline of it, but its growth is sturdier and slower. This is a gain, for the common Chinese sort grows rapidly, making height without much strength of limbs. By starting with a plant fairly well filled out, then giving attention afterward in the way of pruning, a well-

rounded conical evergreen can be had of the Rollinson's golden Arbor Vitæ. These are two golden Arbor Vitæ that can be recommended to all planters—good for the lawn and for growing in pots—and this is the season to see to potting or to planting them.—("Florists' Exchange.")

Fruit in the Sixteenth Century.

Fruit was very rare in England in the reign of King Henry VII. Apples were then not less than one or two shillings each; a red Rose, two shillings; and a man and woman received eight shillings and fourpence for a small quantity of Strawberries. According to the "Gardening World" (whose testimony we do not, however, accept as final), Cabbages and Carrots were introduced about the year 1547. Previous to this period, Queen Catharine of Arragon, first consort of Henry VIII., when she wanted a salad, was compelled to send to Holland or Flanders on purpose. About this time, Apricots and Artichokes were first cultivated. The Currant tree came from Zante, and was planted in England, A.D. 1533. Cos Lettuces were brought from the island of Cos, near Rhodes, in the Mediterranean. The Pear, the Peach, the Apricot, and the Quince, were respectively brought into Europe from Epirus, Carthage, Armenia, and Syria, and by degrees into England. Cherries are of very ancient date with us, being conveyed into Britain from Rome, A.D. 55. Melons were originally brought from Armenia.

The Zoned Pink (*Dianthus zonatus*).

Although not so choice or so desirable as *Dianthus callizonus*, *D. zonatus* is a very satisfactory and pretty plant for the larger rockeries or flower borders, where its tufts of glaucous leaves and its white flowers, with their broad and handsome zone of maroon, look charming in their season, although they have rivals in many of the single varieties of *Dianthus plumarius* which are now in existence. The zoned Pink, says a writer in "Gardening Illustrated," grows to about a foot high, and is suitable for the front of a border or for trailing over a slope or stone in the large rockery. It is easily cultivated in any common soil, although preferring a free and light one; while its flowers last for a considerable time in summer, and are produced in such numbers as to make a good plant quite ornamental. It is propagated by seeds or by pipings or cuttings, the two last struck under glass, and the seeds sown in sandy soil in pots or pans, or in a frame. The seeds germinate freely, and by their means a good stock can be readily secured at little cost.

Callicarpa purpurea.

This is one of the most effective of the berry-bearing plants that are adapted for pot culture, writes "J. M. T." in the "Scottish Gardener," and should be grown where plants are required for winter decoration. The plant is naturally thin, and, if left to itself, somewhat straggling in growth. To correct this it is necessary to stop the shoots once or twice during the summer. The leaves are serrated at the edges, and both sides, as well as the stem, are profusely clothed with hairs. The flowers are borne in cymose clusters upon footstalks, which issue from the axils of the leaves, and are themselves very insignificant, but they are followed by bunches of bright, glossy, deep violet coloured berries, and they generally remain in full beauty from November to May. Ordinary loam with some leaf mould or peat, a little rotten manure, and sand is the most suitable soil for its growth. Young plants may be raised from seed or cuttings in spring, and they should be shifted on as they require it, for, as they are wanted to attain an effective size before autumn, there is no time to lose. In an intermediate temperature the plants will make satisfactory progress; let them have plenty of light by standing them near the glass. Syringe overhead each afternoon, and when the soil gets full of roots see that enough water be given, for if allowed to flag the foliage will suffer. The old plants may be cut down in spring, with the object of being grown on another year; after they have started into growth they may be partially shaken out and placed for a time into smaller pots, shifting them on in course of time into pots proportionate in size to their strength.

Gardening as an Employment for Criminal Lunatics, Prisoners, and Convicts.*

(Concluded from page 531.)

I must pass now to deal with the second section of my paper, that of the prisoners, in which I will embrace also convicts. Male convicts in Scotland are nearly all employed at outside labour at Peterhead breakwater works, and female prisoners are almost wholly employed in their cells. Unfortunately, the labour at Peterhead is not skilled, and can be performed by any man of ordinary capacity, so that nothing in the way of a trade is, to any extent, acquired. In the case of the prisoners the work is still less such as to qualify a man for earning a livelihood on his discharge. Unless he possesses a knowledge of a trade he very seldom acquires sufficient knowledge during the course of his imprisonment to be able to make a living by it on gaining his freedom. The work done in prison by these short-sentenced prisoners is of a very low paid character, and mostly useless as an occupation to them on their liberation. In the year ended the 31st of December, 1905, the highest earnings tabulated in the Commissioners' report were those for labouring and stone-breaking, namely, £38 12s. 1d. per head. Gardening is credited with £21 0s. 10d. per head, and the lowest are those for teasing oakum and knitting respectively. It is, however, to be taken into account that the Commissioners credit themselves with nominal earnings for labour done for the prison itself. This is a fictitious form of accounting, and no money passes in payments for the figures stated as earnings in their reports. The late John Hill Burton found this method of book-keeping in operation, and sums used to be voted by Parliament, and cross entries appeared in the accounts of the value of earnings and payments for prison labour. Dr. Burton, however, held as a matter of sound political economy that where no money passed no monetary figures of a fictitious nature should appear, and previous to the advent of the Prison Commissioners this rule obtained in the making up of accounts. The old adage *ex nihilo nihil fit* was strictly applied. This system of showing the assessed value of prisoners' labour had been long practised in England, and still continues, showing apparent gains where no gains exist. The clerical work involved in showing the supposititious money earnings of prisoners and convicts gives a great amount of trouble, and is practically valueless, as the number of men employed with the amount of work done gives a sufficient idea of what has been performed, without rating such work at a fixed figure without any respect to one man's capacity differing from another.

There are no farms attached to any prisons in Scotland, and what vegetables are grown are mostly reared at Barlinnie and Perth. As to the adaptability of this course of work for a great many of the inmates of our prisons there can be no question that, with longer sentences at least, prisoners might be trained to work which would fit them on discharge for outdoor labour within the reach of the meanest capacity; and in place of being shut up in cells, where body and mind suffer by the unnatural conditions in which they are placed, it would be far more reasonable if the men who are so largely engaged in an indoor life were employed in outdoor occupations as in Canada and New Zealand. In Canada the "Montreal Witness" reports:—"Instead of mewing criminals in unwholesome gaols to have their physical and with it their moral stamina benumbed, and to pollute each other with evil communications which are the spiritual disease germs with which the gaol atmosphere is loaded, the prisoners are to be taken out to the country, and under the wholesome heavens and in the divine sunshine to be taught the occupation of Paradise. They are to be made students of cultivating and of all the cognate occupations after the most advanced methods. Why should we have gaols which cost thousands, to send back to the world lives crushed and poisoned when we could be innuring our criminals to real labour and some useful calling."

In New Zealand the system of outdoor employment for prisoners has been for some time in operation, and a New Zealand newspaper said in its columns this year that "few people realised the success which has attended the system of employing good-conduct prisoners in tree planting." The results have, the reporter says, "come up to his fullest expectations. There is at all four stations really good work being done. The prisoners like the outdoor life, and there has not been any serious illness during the year. The conduct of the men on the whole has been very good, and the warders have had comparatively little trouble with them. Since the Waitapu station was established 1,776 acres have been planted with 4,341,704 trees, all of which will produce in course of time timber which can be used for railway sleepers, bridges, &c. The minister in whose department this work is carried on visited the station, and says that the life has a good moral effect on those sent to the camp, particularly on those who are not hardened criminals. The cost of maintaining the prisoners at tree-planting is greater

than the prisoners in towns, but the minister says that against the extra expenditure it must be recognised that in time the colony will have, in some thousands of acres of timber, a very valuable asset."

In the north-west of Canada the prisoners are also employed in agricultural work. In the year 1905, with an average of forty-two inmates, Regina gaol had 124 acres of garden and field produce growing, and this, too, with the majority of the prisoners with sentences under six months. At other parts throughout the north-west territory the prisoners are employed in outdoor labour. One particular feature in the gaol returns for Canada is that the Irishmen are to be found in the criminal lists of the gaols in town, and the Scotsmen as a rule in the majority in the towns of the outlying settlements of the north-west territory. New South Wales has followed New Zealand in classifying the criminals and imposing indeterminate sentences on habitual criminals, a stage very desirable in this country, but which has not as yet been reached. An autocratic bureaucracy in prison matters obtains even in Russia, and the pivot on which such a system rotates is but too often planted on the head of a despot, with a mind as crass as his heart is cruel, and a disposition as venomous as his judgment is prejudiced.

The cruelties of the prison system in other countries, even in last century, are well known, such as that of Naples, where in King Bomba's dungeons the victims of an infamous king's deadly hatred of liberty and progress were liberated through the instrumentality of Garibaldi and Gladstone. There in these pent houses the miserable objects of a refined cruelty were shut up until their bodies rotted, their minds became unhinged, and their eyesight was obliterated. I have witnessed something approximate to this in the Belgian prisons at Ghent, where infatuated murderers were shut up and debarred from speech with their fellow criminals, hedged in in their beds with white curtains, wandering about aimless and hopeless, clad in white—like ghosts, and peering at you behind a bonnet mask which only showed a pair of vacant eyes, and not the "face divine." In reply to my enquiry of one of the officials if such creatures ever got out, "Yes," was the reply, "when death liberates them." "Yes," you will say, "such is the case on the Continent but not in this country." Admitted that it is so; but it is simply a question of degree, and our methods at the present day follow, at a distance it may be, but still follow, the ways of Pharaoh's captain of the guard, and Samson in many cases still grinds in the prison house of the Philistines, and the keeper of the gaol of Phillipi still trembles as in the day of Paul and Silas for the safety of his prisoners, the possibility of their escape, and the punishment to be meted out to him by his Roman superiors.

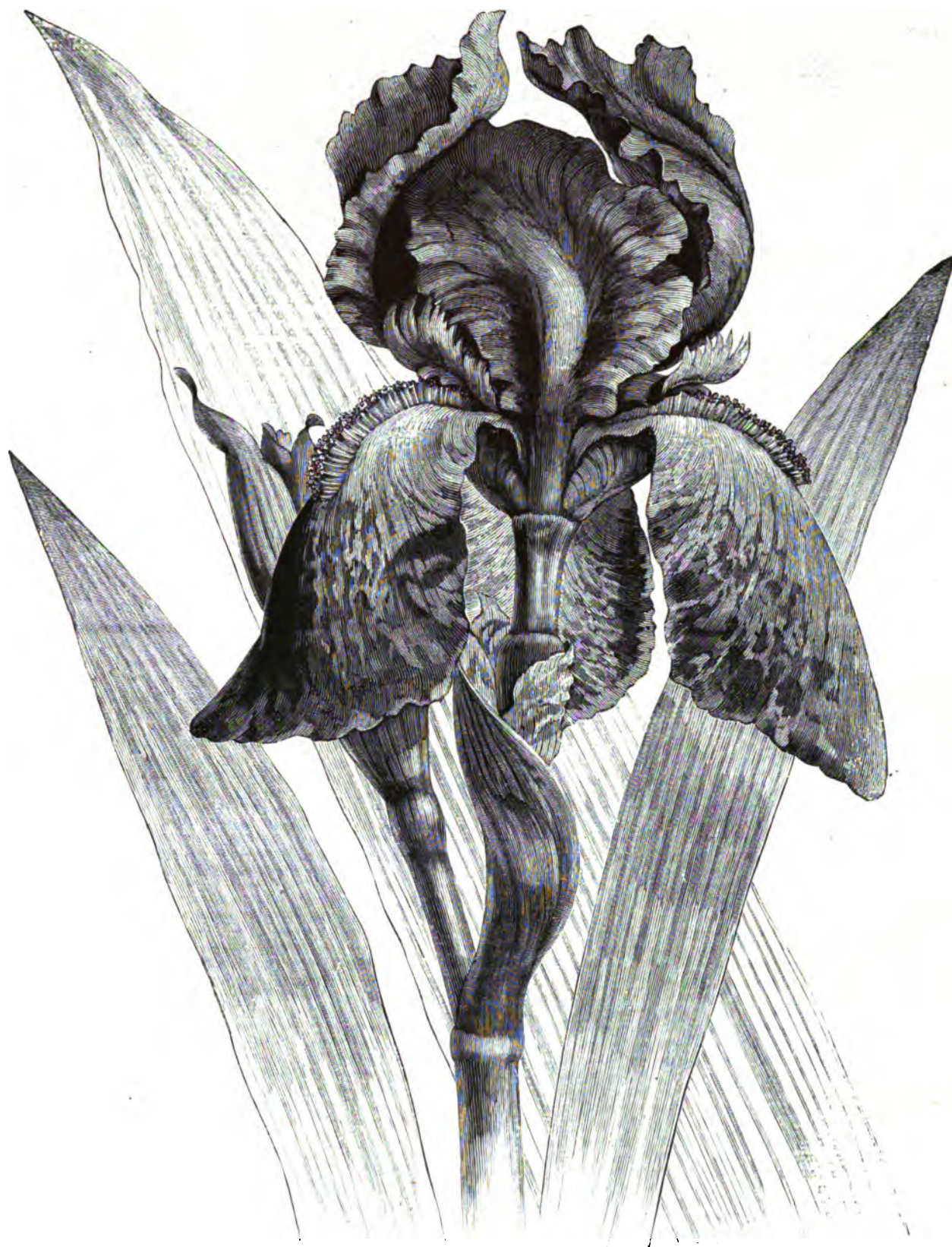
Friends! Britons! countrymen! lend me your ears, and let the whole system of caging our fellow mortals beyond the reach of a free atmosphere be changed for natural methods and conditions, and not employment at tedious work in isolation that degrades humanity instead of elevating it. Otherwise, put the man underneath the inverted bowl we call the sky, and wherever he looks, above or around, he beholds the enduring specimens of his Maker's wisdom in architecture—the bow that spans the landscape, an object of beauty and creative skill—the hum of the bee and the song of the bird, and not the jangling of the instruments of Society's hatred and revenge.

The Dalmatian Iris.

This is a splendid Flag Iris. It is, indeed, thought to be the queen of the Iris family—surely a very proud title. It is now in flower, and its sword-like leaves, 12in to 18in long, are effective even when there are no flowers. The latter are usually larger in appearance than our illustration portrays, and are borne two to three upon an erect stalk of about 2½ft to 3ft. height. They are of a soft lavender blue with yellow beard, and are scented like Orange blossom. It is native of the Mediterranean region, and is easy to grow, liking an open position in a sandy, well-drained, calcareous loam. In alternate years the flowers are less good, as a rule. They can be broken up and be replanted after flowering, or early in the autumn. Other good varieties of the pallida group of Irises are *delicata*, *Walner*, *Albert Victor*, and *Queen of May*, the latter being rosy-mauve.

* In 1903, 2,695,610 trees were planted by means of prison labour in New Zealand, as follows:—At Dargree Prison, 176,450; at Hamner Prison, 481,000; at Waitapu Prison, 1,453,550; at Waipu Valley Prison, 584,610, besides 19,000 and 114,650 used to fill up blanks at Hamner and Waitapu respectively, making a grand total of 2,329,820 plants. At Hamner and Waitapu the following were used:—European Larch (*Larix europæa*), 1,006,800; Austrian Pine (*Pinus austriaca*), 427,050; Corsican Pine (*Pinus laricio*), 283,300; *Pinus ponderosa*, 54,850; Douglas Fir (*Pseudotsuga Douglasii*), 41,000; Norway Spruce (*Picea excelsa*), 40,000; American White Pine (*Pinus strobus*), 21,100; Locust Tree (*Robinia pseudacacia*), 15,300; *Pinus Benthamiana*, 13,225; *Pinus muricata*, 12,000; White Birch (*Betula alba*), 4,503; *Pinus Jeffreyi*, 3,675; *Pinus Lambertiana*, 1,250; Sitka or Menzies Spruce (*Picea sitchensis*), 500. The kinds planted at Dargree and Waipu are not specified.

* A paper read by Mr. James Moncur, Colinton, at the monthly meeting of the Scottish Horticultural Association, August 6th, 1907.



The Dalmatian Iris.—*I. pallida dalmatica*.



Amherstia nobilis.

This exceedingly beautiful Indian tree has been cited as the most magnificent flowering member of the whole of the vegetable kingdom. Certainly, judging from a large specimen flowering in the Aroid and Tropical Tree-fern House, known as No. 1, at Kew, where it was recently in flower, the long pendulous racemes of vermilion coloured blossoms are a gorgeous sight. A branch cut from this tree and exhibited in No. 4 tent on the second day of the recent Temple Show attracted a good deal of attention. *A. nobilis* was first discovered by Dr. Wallich in 1827. He describes it as a tree 40ft in height, with a girth of 6ft near the base. Great difficulty was experienced in introducing the plant into this country owing to the seeds so soon losing their vitality. The Duke of Devonshire sent out a collector especially to obtain a living specimen for the Chatsworth collection. He was successful, and the plant flowered, but the honour of first flowering *A. nobilis* in this country belongs to Lady Laurence, who lived at Ealing Park. This was in 1849. The Kew specimen is said to have been grown from a cutting of the Ealing plant. The genus *Amherstia*, of which this is the only representative, is named in honour of Countess Amherst, a lady very much interested in botany. The Kew specimen is about 25ft in height, the long pendulous racemes of flower, evenly dispersed over the whole tree, are 2ft to 3ft in length, with an average of some twenty-five blooms on each. The leaves are pinnate. The close moist atmosphere of the house, judging from the growth and appearance of the plant, is very suitable. In winter the temperature ranges from 60deg to 65deg Fahrenheit, the minimum summer temperature being about 75deg, rising with sun heat to 90deg or more. The tree is growing in a well-drained border, and in general appearance very much resembles a *Brownea*.—A. O.

Scottish Oaks.

Although the Oak does not attain in Scotland dimensions equal to those of English trees of the species, and in the native forests of that country is generally of diminutive size, yet many individuals have been marked as entitled to some consideration. Of these, the following list was originally presented in Mr. Loudon's splendid "Arboretum Britannicum." In the neighbourhood of Edinburgh there is an Oak, in Dalmeny Park, 70ft high, with a trunk 15ft 9in in circumference; diameter of the head 96ft. Another Oak, 70ft high, has a trunk only 6ft 3in in circumference, but carries nearly that thickness to the height of 30ft before it throws out branches. At Barnton Hall is an Oak 80ft high, with a trunk 11ft in circumference, and a head 82ft in diameter. The trunk is sound and without branches to the height of 20ft, but the head is stag-horned and much decayed. At Hopetoun House is a growing tree 75ft high, with a trunk 11ft in circumference. At Melville Castle is an Oak 70ft high, with a trunk 18ft in girth at 4ft from the ground and a head 90ft in diameter. In Ayrshire, at Kilkirran, one is 50ft high, the girth of the trunk 12ft 6in, and the diameter of the head is 90ft. In Haddingtonshire, at Yeeter, another is 89ft high, with a trunk 12ft in girth and a head 70ft in diameter. In Lanarkshire at Bothwell Castle, 59ft is the height of an Oak, with a trunk 14ft in circumference and a head 98ft in diameter. Others are: in Roxburghshire (Minto) several about 200 years old, which are 70ft high, the girth of the trunks about 12ft, and the diameter of the heads 68ft. In Aberdeenshire, at Fintray House, are four with trunks varying from 5ft 6in to 5ft 10in in circumference. In Banffshire (Gordon Castle), 66ft high, 10ft in girth, head 66ft in diameter. In Cromarty (Coul) stands one 162 years old, which is 80ft high, trunk 12ft, and head 60ft. In Fifeshire (Donibristle Park), 70ft high, trunk 11ft in girth, and 40ft clear of branches, head 45ft. At Largs, 100ft high, trunk 9ft 6in, 35ft clear of branches, and a head 53ft. In Forfarshire (Gray House), 68ft high, trunk 17ft 6in, head 90ft, in June, 1836; the same Oak in 1821 was only 16ft in circumference. In Perthshire (Taymouth), 45ft high, trunk 14ft, head 72ft. In Ross-shire (Braham Castle), 80ft high, trunk 12ft, head 90ft. In Stirlingshire (Blair Drummond) an Oak is 120 years old, 86ft high, trunk 14ft in circumference, head 60ft. There are many fine Oaks at Blair Drummond from 15ft to 50ft in the bole, but no other is quite so much in circumference. In Callender Park there is an Oak 50ft high, trunk 15ft 6in, head 58ft. In Sutherlandshire (Dunrobin), 10ft high, head 47ft, and the girth of the trunk about 11ft.

In these days when so much is written about forestry and

the planting of land, especially in Scotland, a few notes with measurements of Oaks made seventy years ago may be of interest. These are re-extracted from the "Edinburgh Journal of Natural History and Physical Sciences" of date August, 1838. They embrace most of the counties in Scotland. It may be that some of these trees are still standing, and if so, and if they can be identified by readers of the *Journal of Horticulture*, the present measurements of some of them would be of considerable value as marking the growth of the Oak in Scotland.—P. L.

The Cottage Gardener.

It had been a showery, warm, "growing" day, and having finished my own daily routine I took a walk through the quiet country village, which looked greatly refreshed after the showers. Everything was in the "best of spirits"; birds were whistling in the trees, children were romping in their boisterous, happy way, and the scent from the blossom-laden *Laburnum* lent a welcome addition to the lovely yellow flowers, all adding to the picturesque scene charms of their own. In the midst of this I saw the form of a fine old fellow bending over his beds of French Marigolds with an old wooden bucket of soot which he was waging war with against his old enemy, Mr. Slug. To see the way he dusted and fondled those plants! It put one in the mind of some of our "heads" on the morning of the 'Mum show, or when we see them potting up an extra special orchid. After wishing each other a "Good evening," we got into conversation about his much-loved plants. Marigolds, Stocks, Fuchsias, and Roses were his great favourites. What a proud smile crossed his honest face as he called to memory his deeds at the shows in his locality; and he deserves all his hard-earned honours. For him there is none of the cut-throat, do-your-neighbour-any-way sort of method about him. All is straightforward honest enthusiasm. What other man but an enthusiast would rise at three in the morning to transplant his treasures? On my asking his reason for this, he replied, "Well, you see, I had other work on that day, and I thought it would be well to get them out in such nice weather." And this at well over sixty! No long botanical names worry this man. He knows nothing of the scientific side of horticulture, but he has, I believe, the greatest of all attributes, love of his plants, without which horticulture is a very poor occupation.—F. C.

Fruit Prospects.

It would be interesting to learn from your readers in different parts of the country whether they support "H. D.'s" estimate of a good fruit year, except for Gooseberries. Reports that I have seen from Evesham and elsewhere indicate poor crops of Black Currants and Plums. The "Evesham Standard" all along has stated that the Pershore Plum crop would be a light one, that variety having blossomed only slightly. Of Plums generally in the Evesham and Pershore districts last Saturday's report is that "the droppings are great, and some growers who had good prospects expect but a very thin crop now." In my own Plum field I expect only about one-eighth of last year's yield, or possibly only one-tenth. As to Pears, I have eighty-five cordons of Clapp's Favourite, which blossomed thickly and strongly, but have only a sprinkling of fruit set; and some fine young standards of the same prolific variety, which showed a great profusion of strong blossom, will have only a small crop. Out of a dozen or more other varieties only two or three are fairly loaded with young Pears. Apples, in spite of the withering of more trusses of fruit blossom than I have ever seen before, partly from the ravages of the pith moth, and partly from brown rot, promise to be abundant, and require an immense amount of thinning. Cherries and Strawberries with me are promising, and I was fortunate enough to escape the damage done in most parts of the country by frost to Gooseberries and Currants. I attribute the failure of Plums and Pears to set properly to the cold weather of May, not to frost, as I had none after the blossom was expanded except a few on Monarch, and these have set better than some later blossom.

I have just received the gist of reports obtained from several growers in the Faversham and Sittingbourne districts of Kent, as follows:—"Gooseberries, half crop; Black Currants, small crop; Plums, half crop; Cherries, not so many as last year; Apples, large crop."—A SUSSEX GROWER.

The late frosts and severe storms thinned out the fruits very severely. Now, to make matters worse, we have been visited by an extra large number of caterpillars, which have practically spoilt all the prospects of a successful crop of fruit. In many places all hopes of saving the crop have been given up, but in my opinion there is still a chance left. The stone fruits have largely escaped the majority of the insects, and the Strawberries will be plentiful; in fact, they will scarcely pay for the picking. The weather and insects have been very kind to the Cherries, Plums, and Damsons, which set very favourably.—C. E. R.

Mulching.

Mulching is a very old and natural process of covering the soil above the roots of trees and plants in order to prevent evaporation, to preserve a uniform degree of heat and moisture, and to supply nutritive substances. This is effected naturally by the gradual change that overtakes everything on the face of the earth, and known as "weathering." Sir Thomas Browne quaintly said more than two hundred years ago, "Time antiquates antiquities, and hath an art to make dust of all things." Time, however, is only a convenient figure of speech, for it really is not time, but the natural processes which require time for their work. Of these natural processes there are four that specially deserve consideration: changes of temperature, saturation and desiccation, frost, and rain.

CHANGES OF TEMPERATURE.—In periods when the days are excessively hot, with nights correspondingly cool, the surfaces of rocks (and the surface of the earth generally) undergo considerable expansion in consequence of the increase of temperature in the daytime. At night, on the other hand, the rapid radiation quickly chills the rock or surface, and causes it to contract. Hence the superficial parts, being in a perpetual strain, gradually crack up or peel off, being more or less advanced in decay.

SATURATION AND DESICCATION.—The exposed surfaces of rock are loosened and fall to dust by the alternating soaking with rain and drying in sunshine, and this applies equally to the rubbish found at the base of cliffs, as to the component particles of stone which are generally designated as soil.

FROST.—In our climate this is the most familiar source of decay. The water that falls from the air upon the surface of the land soaks into the soil. When the imprisoned moisture passes into ice, it expands, and in expanding pushes aside the particles between which it is entangled. Where this takes place in soil, the pebbles and the grains of sand and earth are separated from each other by the ice that shoots between them. They are all frozen into a solid mass that rings like stone under the feet, but as soon as a thaw sets in the ice that formed the binding cement passes into water, which converts the soil into soft earth or mud. This process, repeated winter after winter, breaks up the materials of the soil, and enables them to be more easily made use of by plants, and also more readily blown away by wind or washed off by rain.

RAIN.—In falling through the air rain absorbs the gases of the atmosphere, and with their aid attacks the surfaces of rock or the materials composing the earth's crust. With the oxygen thus acquired it oxidises those substances which can still take more of this gas, and causes them to rust. The particles lose, more or less, cohesion, and consequently crumble down. The influence of rain, and, indeed, all the atmospheric processes, is to cause the exposed parts of rocks, or the earth's face, to rot from the surface inwards. Where the ground is protected by vegetation the decay is retarded, but in the absence of vegetation or its accumulated debris, the outer crust of the decayed layer is apt to be washed off by rain, or may be blown away.

Weathering is the result of all the processes of Nature fore-shown, and all over the land, in all kinds of climates, and from various causes, bare surfaces of soil and rock yield to the influences of the atmosphere or weather. What is the object of this weathering, or what becomes of all the rotted material?

In Nature we find on opening the ground down to the rock underneath, a gradual passage from the solid rock up to the earthy layer that supports the vegetation of the surface. The rock is found to become more and more broken and crumbling in tracing it from below upwards. The upper layer is of dark vegetable mould or humus. This dark layer owes its characteristic brown or black colour to the decaying remains of vegetation diffused through it.

In section, all natural soils present three distinct layers. At the bottom lies the rock; this includes all substratums, either undecayed or still fresh enough to show its true nature. Next comes the broken-up, crumbling layer through which roots descend in their strongest formations, and which is known as the subsoil. At the top lies the dark band, crowded with rootlets and forming the true soil.

Now we may refer to mulching as a natural process. The very weathering of soil implies a fine surface, or, according to Thomas Tusser:—

"Good tilth brings seeds
Ill tulture weeds."

This fine surface is indispensable to a favourable seed bed. It is conservative of the moisture which the seed requires, and facilitates the exploration of the soil by the delicate rootlets and root-hairs. A fine surface also aids the crop in droughty periods by breaking the capillary tubes that bring the supplies of moisture from the reservoir a little below the surface. Thus the mere superficial covering of mould acts as a soil mulch.

This is well known, hence the practice of an occasional slight stirring of the superficial soil in order to maintain the minute invisible conduits which enable it to continuously draw its supplies of moisture from below in droughty periods. This is found in practice to conserve, rather than to dissipate, the underlying moisture. Indeed, it is not simply with the result of killing weeds that a gardener or farmer hoes his crops. Weeds are bad, but drought is worse. Hoeing and cultivating serve to loosen the upper layer of soil, and tend to keep the under soil cooler, and shields the rising moisture from loss by evaporation. Thus it is that the cultivator of the soil can utilise the forces of Nature in bringing water to the roots of his plants for their sustentation, and at the same time prevent it from passing and escaping as vapour.

In Nature we find pans that are formed by chemical agencies. On calcareous soils, or where lime has been very freely used, this material forms a lime pan at a moderate depth from the surface, the changes being similar to those which take place when lime and sand harden in mortar. Soils containing an undue proportion of oxide of iron have this material washed into the subsoil, forming an iron pan. Moorland pans arise from the accumulation of salts of iron beneath the soil. In all cases it is important that these obstructive layers be broken up, and thereby promote the percolating properties of the soil.

In cultivated ground frequent digging or ploughing at the same depth results in what is called a "spade pan," or "plough pan." Also where a layer of stable or farmyard manure has accumulated beneath the soil, the overlying soil soon becomes dry, and speedily suffers from drought. The explanation, of course, is that there has been no upward current of moisture to replace that which has been lost by evaporation at the surface. It is necessary that all such hard or indurated pans should be broken, either by deeper digging or trenching. But by the deep stirring of the land a greater rooting area is provided with a corresponding increase of water-retaining capacity.

The cultivation of land is really a weathering process—the more it is knocked about the more it will yield up to the plant in the matter of food by the hastening of the processes of decay. It follows that when once a covering of soil and subsoil has been formed over a level piece of ground, especially where there is also an overlying carpet of verdure, the process of decay ceases more or less, as the very layer of rotted material protects the rock from further disintegration. Weathering under these circumstances is undoubtedly reduced to its feeblest condition. But the process is not wholly arrested, otherwise plants growing on the surface would in time exhaust all the nutriment they could get out of it, and with the increasing impoverishment of the soil, they would dwindle away and finally die out. Something of this kind not improbably takes place where forests decay and are replaced by scrub and grass. But the long-continued vigorous growth of the same kind of plant upon a tract of land indicates that the process of weathering is not wholly arrested.

But even where a grassy turf protects the general surface, various burrowing animals bring up soil as a top-dressing. Earth-worms, according to Darwin, bring up in some places not less than 10 tons of the finest mould per annum over an acre of ground, and where it remains in the ground the soil brought up by worms cover over stones and other objects lying there, which consequently seem to sink into the earth. Besides, the operation of these animals causes the materials of the soil to be thoroughly mixed, the inorganic with the organic. Nature takes nothing away but what it also restores. On the other hand, cultivation takes all, or most, away, and returns no more than a modicum to maintain the soil's fertility in the way of manures and fertilisers. Mulching as a gardening process consists in applying various substances as a covering for soil above the roots of trees and plants, in order to prevent evaporation, and so preserve a uniform degree of heat and moisture.

It is also practised for other reasons, more particularly that of supplying rich material to establish plants, so that its nutritive properties may be washed down by rain or artificial watering. For this purpose, fresh horse-droppings, preferably thrown into a heap, and when in good heat turned outside to inside, top to bottom, and when again in good heat spread out so as to cool and cease fermentation, are excellent. They are all the better for the addition of a little superphosphate, and in the case of fruit trees also a sprinkling of double sulphate of potash and magnesia (refined kainit). The chief thing to guard against is the evolving of ammonia in a closed structure to such extent as to injure the foliage of the crop plants. This is safeguarded by the sweetening before alluded to, and not using excessive quantities at a time, not more being applied than to just cover the surface an inch or a little more deep. Even outdoors it is advisable to sweeten the horse manure, not so much as regards its rankness, as for the certainty of a crop of weeds springing up from the seeds contained in the unfermented material. Besides, the fermentation aids in resolving

the components of the manure into more readily available forms as food for the plants. Good rotten manure is by some preferred, as its constituents are in forms readily available for taking in by the roots as food.

All recently transplanted trees and shrubs, as well as fruit trees and bushes, are greatly assisted by being provided with a mulching of litter (but let it be fermented), half rotted manure, leaves, or old Mushroom bed manure. Such mulching acts beneficially in retaining warmth and moisture, thus neutralising the evil effects of drought, extreme cold or heat.

Where enriching properties are not required, straw, chaff, short litter, spent tan, cocoanut fibre refuse (the latter for flower beds), are excellent non-conductors, capital for conserving the soil moisture, and for neutralising the effect of extreme heat and cold.

The mulching should be applied betimes, always in advance of drought in summer, which usually commences soon after the coming in of June. The mulching to supply nutriment will depend in a great measure for benefit upon the washing in of their soluble components. It is also well to bear in mind that mulching will not bring moisture into the soil, but only conserves what there may be there at the time of its application. Hence the mulching should follow after a thorough moistening of the soil by rain, or failing that, a thorough soaking of water before applying the mulch. The moisture will make its way to the surface and strive to escape into the air; hence the object of the mulch is to prevent its free passage into the atmosphere.—A. B.

Societies.

Royal Horticultural, June 9th.

The first show after that of the Temple, and, moreover, following closely upon a Bank Holiday, might have been thought to be poor. This was far from the facts. The show was entirely good and representative, there being fruits, flowers in plenty, but no vegetables, however. Messrs. Veitch's pot fruiting Figs and Peaches were ideal, and there were specially fine groups of Carnations, Roses (Paul and Son), Verbenas (H. B. May), and numerous hardy plant displays. Several meritorious novelties were certificated by the Orchid and Floral Committees respectively.

Fruit and Vegetable Committee.

Present: Mr. Geo. Bunyard (in the chair), with Messrs. Jos. Cheal, Edwin Beckett, Alex. Dean, John Basham, A. R. Allan, Thos. Comber, James Vert, Joseph Davis, G. Reynolds, J. Jaques, Chas. Foster, Geo. Wythes, A. H. Pearson, and John Harrison.

A boxful of Neotarine Early Rivers (nine fruits), came from S. Heilbut, Esq. (gardener, Mr. Geo. Camp), The Lodge, Holyport, Maidenhead. They were large and perfect models. (Cultural commendation.)

Miss C. E. Martin, Willowbrook, Auburn, U.S.A., had a great assortment of bottled fruits and pickles. All were beautifully preserved, and won a silver Banksian medal.

Messrs. James Veitch and Sons, Ltd., Chelsea, contributed most excellently grown pot Figs—young trees in fruit, with fresh vigorous leafage; also a few Peach trees, equally well grown and well fruited. Of the Figs there were St. John's, Violette Sepor, Violette de Bordeaux, the latter a fine purple-skinned variety. The Peach was Duke of York. One small bush of the latter had twenty-three fine fruits, and this in a 12in pot! (Silver-gilt Knightian medal.)

Mr. S. Mortimer, Swiss Nursery, Farnham, Surrey, contributed a collection of Cucumber fruits in two varieties. Faultless is a cross between Market Rival and Improved Telegraph—a long clean Cucumber. Evergreen is from the reverse cross. This appeared to be stouter. (Silver Banksian medal.)

Orchid Committee.

Present: Mr. Harry J. Veitch (in the chair); with Messrs. James O'Brien, Jeremiah Colman, Henry Little, W. Boxall, Stuart H. Low, F. Sander, H. G. Alexander, J. Cypher, Chas. H. Curtis, A. A. McBean, Richard Thwaites, Arthur Dye, J. Charlesworth, H. A. Tracy, Gurney Wilson, F. J. Hanbury, R. Brooman White, de B. Crawshaw, and A. J. Foster.

Messrs. Hugh Low and Co., Bush Hill Park, Enfield, staged a more than usually extensive group. In it were observed *Laelia purpurata* Alpha, with six flowers; *L.-c. Digbyano-Mendeli*, and many good forms of *C. Mendeli*. *Laelia Latona*, *L.-c. G. S. Ball*, and *Epidendrum prismato-carpum* were also shown. (Silver Flora medal.)

Messrs. Charlesworth and Co., Heaton, Bradford, contributed *Renanthera imeshootiana*, *Eulophia Saundersi*, a pale mauve form of *Miltonia vexillaria*, *L.-c. Canhamiana* and its variety *alba*, also *L.-c. G. S. Ball*. (Silver Flora medal.)

Messrs. Stanley and Co., Southgate, N., brought a display of

forms of *Cattleya Mossiae*. Among the varieties were *Leyswood*, *eburneum*, *Blanche*, *Sir W. Hart Dyke*, *Duchess of Westminster*, *Elaine*, *H. G. Tripp*, *Thompsoni*, *Aurora*, *Ophir*, *Lady Plowdon*, and lastly *Niobe*, each of which are sufficiently distinctive to bear varietal names.

Mr. A. W. Jensen, Lindfield, Haywards Heath, Sussex, staged varieties of *Cattleya Mossiae*, all of which were plants of his own collecting. Mr. Jensen has had twenty years' experience as a collector, and started in business for himself as trade and retail grower some eighteen months ago. On this occasion he staged some particularly fine forms, one named *Aureole* being very pale and pretty. A few good spotted *Odontoglossums crispum* were also on view. Mr. Jensen specialises in the broad-lipped forms of these *Cattleyas*. (Silver Banksian medal.)

J. B. Joel, Esq. (grower, Mr. E. May), Childwickbury, had a magnificent plant of *Cypripedium Rothschildianum* Northaw House variety with five immense racemes, bearing six to eight flowers each. A cultural commendation was awarded.

De Barri Crawshaw, Esq. (grower, Mr. W. J. Stables), Rosefield, Sevenoaks, was represented by a group of fine *Odontoglossums*. They were all cross-breeds, shown under name, with the parentage given in each case. *O. crispodenei* (*crispum* x *Coradenei*) was charming; while there was also *Lambeauianum*, *crispum-Harryanum*, *amabile*, *Leo*, *Tristan*, and *Astarte*. (Silver Banksian medal.)

Walter Cobb, Esq. (Mr. C. J. Salter), Rusper, near Horsham, had a finely-flowered plant of *Laelio-cattleya Dulcostense*, with seven huge flowers. These have purple lip, and roseate-salmon sepals and petals.

M. Maurice Mertens, Mount St. Amand, Ghent, had a group of splendid hybrid *Odontoglossums*.

Messrs. McBean, of Cooksbridge, had *Cattleya Mossiae Jaffa*, *C. M. Reineckiana*, and some good white *Odontoglossums crispum*. (Silver Banksian medal.)

Floral Committee.

Present: Mr. W. Marshall (in the chair); with Miss Willmott, Messrs. H. B. May, W. A. Bilney, Chas. T. Druery, E. A. Bowles, T. W. Turner, G. Reuthe, C. R. Fielder, J. F. McLeod, Wm. Howe, John Jennings, C. J. Salter, W. Bain, Geo. Gordon, Chas. Dixon, J. T. Bennett-Poë, W. P. Thomson, E. H. Jenkins, Herbert J. Cutbush, Edward Mawley, E. T. Cook, and James Hudson.

Some well-grown plants of *Rehmannia angulata* were staged from the Marquis of Salisbury, Hatfield House (gardener, Mr. H. Prince). Most of them were growing in 7in pots, and carried quite a number of spikes. The same exhibitor also contributed some fine plants of *Schizanthus grandiflora*. The plants, though rather tall, were beautifully developed, and the colours most varied.

Messrs. Jas. Veitch and Sons, Ltd., Chelsea, introduced quite a new feature by sending seven specimen *Fuchsias*, each plant being about 8ft high, and grown pyramidally. The foliage was good, while the flowers were in masses. All the varieties were well known twenty years ago, but few of them are grown now. The sorts were *Lady Jane Wilson*, *Doel's Favourite*, *Charming*, *Western Beauty*, *Amy Lye*, *Clipper*, *Brilliant*, and *Mrs. Bright*. Some well-flowered plants of *Philadelphus Lemoinei* attracted much attention. They also occupied a large space of tabling with a most interesting exhibit of *Schizanthus* hybrids, *Candytufts*, *Brachycome*, *Nemesias*, and *Clarkias*, from seed sown in November last. Some really fine plants of *Anchusa italica*, *Droptmore* variety, were to be seen; with some fine spikes of *Eremuri*. The same firm also had a grand strain of *Gloxinias*, arranged in blocks of colour, with *Calla Elliottiana* in splendid form, and some fine pans of *Cypripediums* spectabile; also the *Meconopsis aculeata* with its pale blue flowers. (Gold medal.)

Mr. Amos Perry, Hardy Plant Farm, Enfield, staged an extensive exhibit of hardy flowers. The chief features were a collection of *Irises*, of which *I. Susiana*, *I. Douglasiana*, *I. prismatica*, and *I. variegata Darius* were conspicuous. *Hemerocallis* in variety, the best being *Sovereign*, *Thunbergi*, *Gold Dust*, and *Dr. Regel*, were also here. *Liliums*, such as *L. testaceum* and *Columbianum*, were in good form; while a collection of *Geraniums* formed a splendid feature. The best were *gymnocaulon*, *armenium*, *Nepalense*, *ibericum*, and *grandiflorum*. Oriental Poppies in variety also lent a brilliant colour to the display. (Silver Flora medal.) From Messrs. W. Cutbush and Son, Highgate, came a good collection of cut Carnations tastefully arranged in vases. The new *Coleus Cordelia* was also in good form, as was also the variegated *Geranium Caroline Schmidt*, with its double red flowers. (Silver-gilt Flora medal.)

Calceolaria Golden Glory was staged by Mr. Leopold de Rothschild, Gunnersbury House (gardener, Mr. J. Hudson); and by Messrs. R. Veitch and Son, Exeter. In both cases the plants had been grown in the open air throughout the winter, and at the present time are in full bloom. Messrs. R. Veitch also staged *Rehmannia angulata* *Pink Perfection*, a deep pink variety; also a good strain of *Brompton Stocks*.

Messrs. Gilbert and Son, Dyke, Bourne, sent a good collection of *Anemones* and *Aquilegias*. In the former, the single

white variety The Bride was beautiful, while the double King of the Netherlands was also very distinct.

Messrs. G. Bunyard and Co., Ltd., Maidstone, occupied the length of a table with a fine display of hardy flowers. Particularly striking were the Irises, which formed a fine feature. Some of the best were I. Madam Chereau, Queen of May, Lavinia, Mrs. H. Darwin, Bridesmaid, and Dr. Bernice. Pyrethrums, both in single and double varieties, were particularly good. The Papavers included some fine varieties, as Mrs. Marsh, Lovely, Tomtit, and Darkness. Lupines in variety, with Eremuri, were noteworthy, and a collection of Ixias made a pleasant variation. (Silver-gilt Banksian medal.)

Messrs. J. Peed and Son, West Norwood, were represented by a varied exhibit. The rock and alpine plants were nicely arranged, and were in good condition. Pyrethrums, both single and double forms, were well represented. In the former section the best were Hamlet, Ascot, Empress of India, Princess Irene, and Pascal. The brightest of the doubles were Deese, Lord Rosebery, Brilliant, Melton, and White Aster. A collection of Oriental Poppies and other hardy flowers completed a fine display. (Silver Flora medal.) Mr. R. C. Notcutt, Woodbridge, also sent a nice table of hardy flowers.

From Messrs. Paul and Son, Cheshunt, came an exhibit of Roses, chiefly of a decorative character; also a nice collection of Weigelas. The tall Rambler Roses represented were Trier, Goldfinch, Buttercup, and Perle des Neiges, while plants of Florence Pemberton were in good condition. The Rugosa forms were also much in evidence, as were also bunches of the best hybrid teas. (Silver-gilt Banksian medal.)

Mr. G. Reuthe, Hardy Plant Farm, Keston, was represented by a large display of hardy flowers. (Silver Flora medal.)

Cannas in June are not unusual, but it is seldom if ever one sees these gorgeous plants in the condition staged by Messrs. H. Cannell and Sons, Swanley. The plants would be highly creditable in September, but early in June, they were really magnificent. The most striking were Niagara, Elizabeth Hoss, Gladiator, Frau J. Moritz, M. de Raynal, Venus, and Wm. Tell; also a couple of fine plants of Rose Minnehaha. (Silver Flora medal.)

Some well-grown Gloxinias and herbaceous Calceolarias from Mr. J. A. Young, Stone House, Putney (gardener, Mr. G. H. Street), were very well done, especially the former, which gave evidence of great cultural skill.

Hardy flowers were extensively exhibited by Messrs. G. and A. Clark, Ltd., Dover. The best features were the collection of Irises, Papavers, and Pyrethrums. The latter were in particularly good form, the single varieties Emin Pasha, Jubilee, General French, and Margaret Moore, being all very bright. Iris Susiana was exceptionally large. (Silver Flora medal.)

From Messrs. H. B. May and Sons, Upper Edmonton, came a fine table of flowering plants. Heliotropes in 5in pots were nicely done, the varieties Madame de Bussy, White Lady, and Madame Rodrigues being especially good. Swainsonias galegifolia rubra and alba were bright and cheerful. A collection of Verbenas in blocks of colour were not only well grown, but the colours were distinct and attractive. (Silver Flora medal.)

Mr. R. Neal, Trinity Road, Wandsworth Common, sent a collection of Sweet Peas which were of good colour, though lacking in size. The best were Henry Eckford, Evelyn Byatt, Frank Dolby, Dorothy Eckford, and Gracie Greenwood.

A collection of Lupines from Messrs. J. Cheal and Sons, Crawley, was a noteworthy feature of the show. The new pink variety was in fine condition, as was also a new variety much deeper in colour, best described as a dull terra cotta, but a most attractive form. (Bronze Flora medal.)

Mr. H. Burnett, Guernsey, again staged a wonderful exhibit of Carnations. The seedlings were very promising, especially the dark colours. Mrs. H. Burnett, Mikado, Lieut. Peary, Jessica, and Britannia were good. (Silver Banksian medal.)

The Guildford Hardy Plant Co. exhibited Irises in variety, Erigeron Roylei, Pentstemon pygmaea, some good Pyrethrums, and Poppy Blush Queen, with a number of other hardy flowers.

From the King's Acre Nurseries, Ltd., Hereford, came a well arranged exhibit of Aquilegias of the long-spurred varieties, which were of first rate type and colour. On either side were arranged rock and alpine plants, in which the Dianthus played a prominent part. (Silver Banksian medal.)

Messrs. Carter Page and Co., 52, London Wall, contributed a table of cactus Dahlias, Fuchsias, and a number of annuals. The Dahlias were very good for the early season. The Fuchsias included Mary, La France, Madam Aubin, Ballet Girl, and Sedan.

Messrs. Kelway and Son, Langport, made a gorgeous exhibit of Paeonias and Pyrethrums. The former were very large and bright, the most attractive being Onlooker, Countess Cadogan, Dorothy Daniels, Mrs. E. Horwood, Margaret, and H. O. Arnold Forster. The new single crimson Pyrethrum, Langport Crimson, was very fine; as were also a number of double forms. The best were Carl Vogt, Ivonne Cayeux, Lord Rosebery, Shotover, and Lord Milner. (Silver-gilt Banksian medal.)

From Messrs. R. H. Bath, Ltd., Wisbech, came a good col-

lection of Pyrethrums, backed with Delphiniums and Lupines. The Pyrethrums were well grown and the colours bright. The Poppies were also good, the whole exhibit having ample room. (Silver Flora medal.)

Messrs. Bakers, Wolverhampton, sent a fine collection of long-spurred Aquilegias, also some beautiful Oriental Poppies, such as Oriental Queen, Mahogany, R. C. Notcutt, and Rembrandt. A fine yellow self Gaillardia, Lady Rollison, was also much admired. (Silver Banksian medal.) Hardy flowers in variety were staged by Messrs. G. Jackman and Son, Woking. (Silver Banksian medal.)

Mr. M. Prichard, Christchurch, had a very large exhibit of hardy flowers, half of which was occupied with Pyrethrums, both single and double varieties. A collection of Nymphæas only required a burst of sun to open them, while the hardy herbaceous plants included large bunches of Dictamnus Fraxinella alba, Achillea alpina, and a pretty little rock garden, on which Linaria alpina was conspicuous. (Silver-gilt Banksian medal.)

Foliage plants of a decorative size came from Messrs. W. Bull and Sons, Chelsea. The group was composed of Caladiums, Dracaenas in variety, Aralias, Filicium decipiens, and a number of Marantas. Mr. F. J. Patmore, Lymington, staged some Irises and a collection of Violas, arranged in moss.

Messrs. Hugh Low and Co., Enfield, had a large collection of cut Carnations, also plants in pots. The Malmaison type was well represented, and included Princess of Wales, H. J. Jones, Churchwarden, Lady Grimstown, Mrs. Torrens, and Lady Rose. The cut varieties comprised all the popular perpetual kinds. They also had a few plants of Gerbera Jamesoni. (Silver Flora medal.)

Cut Carnations from Mr. C. F. Waters, Balcombe, Sussex, were presented in a light dressing of Asparagus Sprengeri. The Malmaison type was especially good, while the border variety Lady Hermoine was most attractive in form and colour. (Silver Banksian medal.)

Pansies and Violas were well staged by Messrs. Dobbie and Co., Rothsay. The day being somewhat cool, the flowers stood well. In the former section the flowers were very large and the colours good; while the best Violas were Lady Grant, Nancy Marsh, Louie Granger, Mary Burnie, and Kate Cochrane.

Certificates and Awards of Merit.

Carnation Snowball (Mr. H. Burnett, Guernsey).—A fine white-flowered variety of tree or perpetual-flowering Carnation, blooms large and sweetly scented, full, the petals crimped in the centre, with stout non-bursting calyx. A.M.

Deutzia Wilsoni (J. Veitch and Sons, Ltd.).—A vigorous growing shrubby Deutzia from Western China. It makes abundance of growth and is distinguished by abundance of white flowers, much larger than those of gracilis or Lemoinei. It is a nice addition to the hardy shrubs, and will be suitable for large or small gardens. A.M.

Iris Carthusiana (Mr. J. W. Marshall).—This we did not discover.

Mitonia Bleuana Stevensi (W. Thompson, Esq.).—A pretty, free-flowering variety with good sized white blooms, tinted purple on the upper petals, with a brown mask. From Walton Grange, Stone, Staffs.

Mitonia St. Andre (Baron Schröder).—Parentage: Mitonia Roelzi × Bleuana splendens. The lip is large and white, with rich brown mask. The base of the upper segments is deep magenta. F.C.C.

Odontoglossum Phoebe, The Dell var. (Baron Schröder).—Parentage: cirrhosum × crispum. A beautiful flower of intermediate character. It is richly spotted with crimson-purple over white; and has the characteristic long pointed segments of cirrhosum. F.C.C.

Odontoglossum Queen Alexandra var. Crawshayanum (de Barri Crawshay, Esq.).—Parentage: triumphans × Harryanum. The flowers are of good size, thick in substance, of a deep brown, barred gold, and with the purple and white Harryanum lip. F.C.C.

Philadelphus Lemoinei rosace (Sir Trevor Lawrence).—A remarkable variety, with splendid double-flowers as large as those of Campanula Moerheimi. They are creamy-white, reminding one also of the Snowball tree. A.M.

Pyrethrum, Langport Crimson (Kelway and Son).—A rich dark crimson single Pyrethrum, with gold disc, very telling and fine. From the Langport Nurseries. A.M.

Rhodothamnus Kamtschaticus (Mr. G. Reuthe, Keston).—A new very dwarf shrub, with purple-magenta single flowers suggestive of those of a dwarf Azalea indica. The plants grow bushily, are 6in high, with spatulate, hairy leaves. The five-petalled flowers are 1½in in diamer, and borne two together upon one stalk. A.M.

Rosa Moyesi (James Veitch and Sons, Ltd.).—A new species of Rose from China, one of Mr. E. H. Wilson's introductions. The growth is upright and spiny, with dark green, pinnate leaves, somewhat like those of R. spinosissima. The flowers are borne singly on short spurs. They are single in form, with rusty gold stamens, and coloured old rose—a very taking colour. They are 2in across. A.M.

Stock, Veitch's Strain of Crimson Brompton (Robt. Veitch and Son,

Exeter).—This strain of Brompton Stock is undoubtedly one of the very finest. The spikes are 2ft tall, with very large double rosette flowers of a rich crimson-magenta colour; and the habit of the plant is branching. An A.M. was given for the strain.

Zephyranthes aurea (Sir Trevor Lawrence, Bart.).—Shown in 5in pot. The golden orange flowers are like those of the Day Lily, borne erect and singly. The long linear foliage is of shining green A.M.

Royal Meteorological.

UPPER-AIR OBSERVATIONS IN EGYPT.

The first of the afternoon meetings of this society for the present session was held on Wednesday, the 20th inst. at 70, Victoria Street, Westminster. Dr. H. R. Mill, president, in the chair. Mr. B. F. E. Keeling, director of the Helwan Observatory, gave an account of the Upper Air Observations which are being carried out in Egypt. He said that Egypt itself has comparatively little weather at all, and what there is has no influence commercially except along a narrow belt on the Mediterranean coast; but, on the other hand, the whole prosperity of Egypt is wrapped up in the weather of the neighbouring country of Abyssinia. As the summer rainfall is greater or less in Abyssinia, so is the Nile flood; and in consequence the area of land cultivated, and the general prosperity is greater or less. In years when a bad low stage of the river is to be expected following on a bad flood, the early spring showers in Abyssinia are then of very great importance. As unfortunately there is no meteorological service in Abyssinia, it is not possible to obtain information about the rainfall over that region, so steps have recently been taken to obtain observations on the upper air over Egypt by means of pilot balloons and kites. Mr. Keeling gave an account of the methods employed, and of the directions in which it was hoped in the near future to develop the work. He also stated that the observations of the anti-trade winds made by M. Teisserenc de Bort and Mr. A. L. Rotch have been confirmed. At Helwan the anti-trade wind is reached at a height of about 6,500ft above sea level. The greatest height so far reached by a balloon was 54,000ft, and on that occasion the south-west anti-trade wind was apparently penetrated and a north-west upper current encountered.

BALLOON EXPERIMENTS.

The secretary read a report by Prof. J. P. d'Albuquerque on the "Balloon Experiments in Barbados, November 6-8, 1907," which were carried out by himself and several other gentlemen at the request of Sir D. Morris, for the Royal Meteorological Society. Mr. Spencer C. Russell read a paper on "Observations on the Colour of Lightning made at Epsom, 1903 to 1907." He had for the past five years kept a record of the colours or series of colours noted during each thunderstorm or display of sheet lightning, and tabulated them under their respective colour. He had thus results of observations of fork lightning made during fifty-seven thunderstorms, and seventy-eight observations of sheet lightning. It appears that in fork lightning red is the colour of the most frequent occurrence, and this is followed closely by blue, the least frequent colours being orange and green. White is of the greatest frequency in sheet lightning, red and yellow being next. It seems that the presence of hail, when occurring in association with a thunderstorm, is intimately connected with blue lightning.

Scottish Horticultural.

The May meeting of this association took place in the Goid Hall, 5, St. Andrew Square, Edinburgh, on Tuesday evening, the 2nd instant. Mr. Jas. Whytock presided. There was a large attendance of members. After formal business, Mr. Jas. Harris, of the Inverleith Park Gardens, delivered a lecture entitled "Some Scientific Principles Which Govern Practice in Horticulture," with limelight illustrations. Mr. Harris, in a rather long but very comprehensive lecture, explained the composition of plants in various stages from the seed to the grown plant, showed on the screen their component parts and successive developments of plant life, and the uses of various organs possessed by plants, with illustrations of various modes of propagation by seeds, cuttings, layers, and grafting. He showed that successful cultivation was achieved by intelligent carrying out, and strict attention to, elementary scientific principles. The lecture was listened to with close attention. An interesting discussion followed, taken part in by Mr. G. Berry, Mr. Scarlett, Mr. Grieve, Mr. Comfort, and the president. On the motion of Mr. Todd a most cordial vote of thanks was accorded to Mr. Harris.

The principal exhibits were a nice collection of Sweet Peas in best sorts from Mr. Alexander, gardener, Niddrie, which showed very excellent cultivation. A cultural certificate was awarded. Messrs. Todd and Co., florists, Edinburgh, staged two beautiful plants of *Nephrolepis todeoides*, and four nice plants in bloom of the new pink Baby Dorothy Roses. They also had handsome blooms of seedling fancy Pansies, showing great richness of colour. Mr. Comfort, gardener, Broomfield, had an interesting exhibit of ten varieties of garden Daisies, one

or two of them attractive seedlings. Mr. Comfort had also a small plant of native Wallflower. Handsome blooms of Clematises Nelly Moser and Miss Bateman were shown by Mr. Campbell, Davidson's Mains.

The paper for the July meeting was intimated to be by Mr. D. Kidd, Carberry Towers, on the Strawberry. This paper is to be preliminary to the Strawberry conference which has been fixed for Tuesday, the 14th July.—T. M. E.

British Gardeners' Association.

"PUBLIC GARDENS AND THEIR CONSTRUCTION."

In spite of inclement weather, a large number of gardeners attended the meeting of the London branch at Carr's, Strand, last Saturday. It was announced that the committee had decided that monthly visits be made to parks and gardens by the members, with an appointed leader, during the recess. This met with general approval. Further business having been done, the important event of the evening was the address by Mr. T. Winter, superintendent of Marylebone Public Gardens. Although the subject is a wide one, it was ably dealt with by the lecturer under several headings. The locality was important. It was always necessary to consult the local authorities concerning drainage and other matters, connections having often to be made with many drains. In the formation and preparation of the ground, its nature, whether undulating or comparatively level, its extent, what shelter is afforded by existing trees and shrubberies are to be considered. Tile drains were recommended as the best and cheapest to use. Although expensive in the initial outlay, it was very necessary that the making of carriage drives should be well done. A road ought not to skirt the edge of the grounds, neither should its lines have meaningless curves. In excavating for a road, the nature of the sub-soil makes a difference. Where the lower stratum is fairly firm, 9in of hard core on this, and a 6in layer of flints, finishing with a good thickness of fine gravel, would make a road which would look and wear well. Walks should join a road with an easy curve. They are often made too narrow. In the preparation of the ground for lawn-seed, Mr. Winter said he preferred the surface to be trodden rather than rolled. Previous to planting the ground should be well trenched for the reception of trees and shrubs. In giving a list the lecturer said that *Rhododendrons* ought to receive more attention. In conclusion, Mr. Winter dwelt upon the benefits conferred upon the public by having large parks and open spaces. In the discussion which followed there was no lack of speakers. The chairman (Mr. Hawes), noticing this, considerably allowed as much time as possible before his summing up. Messrs. Lewis, Frogbrook, Hill, Lock, Harding, W. B. Little, Cresswell, and Summerfield raised various points which were subsequently dealt with by the lecturer. Mr. J. Weathers, in an eloquent speech, made some forcible remarks concerning the hacking and butchering of street trees in some localities. Other points which he gave brought up Mr. Barnes (Southwark Park), who ably responded. A hearty vote of thanks was given to Mr. Winter for his excellent address, and a similar one having been given to Mr. Hawes for presiding, the proceedings closed.—A. J. HARTLESS, Branch Secretary.

Metropolitan Public Gardens Association.

At the monthly meeting of the Metropolitan Public Gardens Association, held at 83, Lancaster Gate, W., on Wednesday, May 6, Sir William Vincent, Bart., vice-chairman, presiding, a vote of thanks was passed to the Leathersellers' Company for a grant of £10 10s. to the funds, and it was stated that the Gardeners' Company would confer the hon. freedom of the company upon the Earl of Meath as chairman of the association at a banquet to be held on the 19th inst. Several gifts of plants were announced. The Housing and Town Planning Bill introduced by the Government was considered, and it was agreed to press for amendments to prevent public spaces and recreation grounds from being appropriated as building sites for the purposes of the Bill, which, inter alia, seeks to over-ride all existing statutory and other restrictions designed for the protection of these areas against alienation for other uses. Letters were read from the Metropolitan Water Board stating that certain enclosures at Duncan Terrace, Islington, would shortly be available for the association to lay out as public gardens. It was decided to protest against a scheme for creating a Serpentine at Hampstead Heath, as interfering with the natural beauties.

Correspondence was read with Members of Parliament regarding the Duke of York's School site in connection especially with a proposal that it might be utilised in whole or in part as a school for the elder boys, instead of uprooting and removing the whole establishment from London. Progress was reported regarding schemes for the purchase of land for public recreation at Grove Hall Estate, Bow, and Gipsy Road, Norwood, for which about £180 and £1,900 were still needed. Seats were granted for Ranelagh drive, St. Margarets, and Strand-on-the-Green. The plan for laying out West Square, Southwark, was approved. The opening of Nelson Garden, Merton, the gift of



Frames against a greenhouse.

a member of the association, was announced. It was agreed to offer to lay out Princes Square, Cable Street, as a public garden, if the London County Council or Borough Council would purchase it from its Swedish owners, who are removing their church elsewhere. Arrangements were discussed for the "Country in Town" exhibition at the Whitechapel Art Gallery, which will commence on July 2, and proposals were considered for securing and making use of vacant land at Forest Hill, Wapping, and other localities. A loan of gymnastic apparatus was made for a club in connection with Toynbee Hall. Numerous applications were received and granted for the association's prizes in connection with window garden competitions, and a suggestion was received for converting a disused burial ground in Bayswater Road into a garden for women only, which was deferred for further particulars.

At the June meeting the Secretary General of l'Association des Cités-Jardins de France attended on behalf of that organisation, and made an interesting statement as to the progress and development of the open space movement in Paris.

The Housing and Town Planning Bill was considered, and it was decided to memorialise the Local Government Board to insert a saving clause to protect public spaces from liability to appropriation as building sites. It was agreed to undertake some renovation work at St. James's, Ratcliff, Churchyard, and to grant seats for Notting Hill, Merton, and elsewhere. Applications for prizes for outside window garden competitions in about twenty localities were granted, making with those previously dealt with a total of some fifty centres in London in which competitions are being organised. It was announced that the Barking Road recreation ground would be ready for opening next month, and that the "Country in Town" Exhibition, Whitechapel, at which the association is an exhibitor, would be opened on July 2. Attention was drawn to an announcement of the approaching sale by auction of Princes Square, St. George's in the East, being the church and churchyard of the Swedish Lutheran Church, and it was agreed to point out that the square, being a disused burial ground, was ineligible as a building site, and to ask the London County Council to acquire it for the purposes of a recreation ground, the association undertaking to lay it out.

It was stated that in response to an invitation from the Select Committee, the secretary had given evidence in favour of the principle of the Daylight Saving Bill, as affording an increased opportunity for utilising open spaces and recreation grounds. The Port of London Bill was considered, and it was agreed to join with kindred societies in seeking powers for the new Board to safeguard the Thames as a national place of recreation together with its amenities, and to secure a right of footway along the banks.

Letters were read regarding the Duke of York's School site in connection with proposals for its preservation; Whitton Park, in the acquisition of which the Twickenham and Hounslow authorities declined to assist; Ludshott Common, for which £300 was still needed; Shadwell Market site, as to the future of which the Corporation had not yet decided, and the River Wandle, in regard to which it was agreed to support a riparian owner's bill for preventing the abstraction of water therefrom.

It was agreed to defer until next month the consideration of

a proposal to allow the owners of certain forecourts in the Euston Road to advance the building line by 20ft.

Lean-to Frames.

In the illustration above we draw attention to a very useful class of garden frame. There are many neglected opportunities in this direction; many places where little frames of a similar nature would be of the utmost value. They are not in the least unsightly nor in the way, and for the safe wintering of many plants that are just on the border-line of perfect hardiness in this country, they are invaluable. Many choice Irises, Crinums, Sparaxis, Watsonias, and even larger plants, could be grown herein. The sashes being movable and sliding, these can be totally removed about the end of May when danger from frost is past. If these frames are fixed by the side of a stove or other warm house, a hot-water pipe can be run along the back for purposes of heating. The bottom ventilators of the house might be made to open into the frames, i.e., below the sashes. The front brickwall need not be more than 1½ ft to 2 ft high, and the breadth of the frames 3 ft, with the lights inclining at 30 deg or less. If their value was fully appreciated they would, we believe, be more largely adopted.

Law Notes.

Skinner, Board and Co.'s Application.

The petition of Mr. H. C. Board, senior member of the firm of Skinner, Board, and Co., horticultural builders and heating engineers, of Bristol, was heard recently before the Judicial Committee of the Privy Council, Lord Macnaghten presiding. The subject matter of the petition was the prolongation of a patent term in respect of an invention of new or improved appliances for use in glazing or otherwise covering roofs and sloping surfaces. Mr. Colefax, instructed by Messrs. Atchley, appeared for the petitioner. The Attorney-General and Mr. Rowlatt appeared on behalf of the Crown, and Mr. S. Bramall, an opponent, attended in person to oppose. The patentee claimed that the invention was of great utility, and as applied to greenhouse work was a great advantage over the ordinary-constructed wood greenhouses, the advantages under this heading being (1) increased durability and less cost in maintaining the houses in good condition, there being very little, if any, perishable material on the outside of the roof; (2) increased light admitted to the interior of the greenhouse, owing to the absence of wood rafters and sash bars; (3) increased facility in replacing panes of broken glass; (4) additional strength. On behalf of the petitioner it was urged that up to the present time a remuneration commensurate with the merits of the invention had not been received, and that the trade had shown a prejudice against adopting the idea, and that great difficulty had been met in placing the invention before the public. The petitioner and other witnesses, including professional gardeners, and Mr. J. E. Grace, chartered accountant, gave evidence in support of the petition. It was admitted that royalties to the amount of £2,100 had been received by the petitioner, in addition to the profits received as a member of the firm of Skinner, Board and Co., who had manufactured the patent wire-tension greenhouses. Mr. Bramall, as one of the public, urged that the petitioner's accounts showed that a full and reasonable remuneration had been received, and on that ground he opposed the prolongation of the term. Mr. Rowlatt, on behalf of the Crown, pointed out that the invention had not a very wide application, and considering all things he thought the petitioner had received a substantial sum during the patent term. He could not oppose the question of merit, as, without doubt, there was considerable merit in the invention as applied to greenhouses. It was stated during the hearing that the present application was the last the Judicial Committee would be asked to hear, inasmuch as under the Patent Act of 1907 the jurisdiction on the question of prolongation of a patent was transferred to the High Court. After the arguments were completed, Lord Macnaghten, in delivering their lordships' decision, said that the petitioner had received considerable remuneration, but having regard to the merits of the invention, its utility, and the difficulty the patentee must necessarily have found in bringing the invention to the notice of the public, except by exhibit, their lordships would humbly recommend his Majesty to grant a prolongation of the patent for three years.—("Bristol Times and Mirror.")

Young Gardeners' Domain.

*. The prize is awarded to Mr. A. Burton, Brocket Gardens, Hatfield, for his "Notes on Figs":—

Notes on Figs.

The Fig has always been a fruit familiar to man. From the earliest times it has yielded welcome fruit and shade to the weary traveller, and no matter what volume of ancient literature we take up, we are almost sure to find this delicious luxury mentioned somewhere. In the Bible it holds the honour of being the first recorded fruit, and all the way through the Scriptures we hear much of it, not the least famous example being the one which Christ cursed because it was barren. Some writers believe that this particular tree belonged to the form known as *Ficus caprificus*, which throws its fruit prematurely; but St. Mark, in his account of the incident, says that "The time of the Fig was not yet." In Greece and Cyprus it is perhaps more at home than in any other land, but in both the old Greek and Roman Empires it was highly esteemed. In all the Mediterranean countries it flourishes still, and is grown largely on account of its great commercial value. We have no record of when the first specimen was brought to Britain, but it certainly has been cultivated in these islands for several hundred years. In a lean-to house at Brocket Hall there is still surviving a very interesting tree, which is one of the oldest in the country, and certainly the most ancient in Hertfordshire. It is known as the White Ischia, or Brocket Hall Fig, in garden dictionaries, and in spite of its great age, the sturdy old warrior crops remarkably well, carrying hundreds of small, greenish-yellow, sugary, and extremely rich flavoured fruit.

I will now say a few words about the culture of Figs in borders, for though I believe that pot-grown Figs cannot be beaten for early work, yet I maintain that for ensuring a consistent crop through the summer and autumn months nothing can excel two or three houses planted with useful varieties. One house should contain such general favourites as St. Johns, Brown Turkey, and Black Ischia, and if started at the New Year will bear two crops, the first to follow the pot-grown batch, and the second to come last of all. The midseason house should be planted with these varieties:—White Ischia, Negro Largo, Brown Turkey, and St. Johns, and should be started about the middle of February.

Fig borders, being somewhat confined as a rule, should be given a top-dressing of loam, bonemeal, and lime rubble, but little or no water should be given before the trees move. Temperatures at the commencement should be a maximum of 60deg and a minimum of 55deg by day, allowing a rise of 10deg by sun heat. At night a maximum of 50deg and a minimum of 45deg should suffice. These figures must be gradually raised as the season advances. Figs like moisture, and on bright days copious syringings must be given, keeping the evaporating troughs full of weak liquid manure. The border should be watered with diluted farmyard liquid manure, or an approved fertiliser washed in. The last watering should be given a month before the fruit starts ripening, if later the Figs will split and rot. It is during this ripening period, when surfaces are dry and hot, that insect pests make their appearance. These can generally be disposed of when the fruit is all picked by forceful syringings. As soon as the trees are cleared, give them a good watering, and shut the house up for its second crop. The house containing the midseason varieties, if started on the date above mentioned and treated similarly to the early house, should now be carrying ripe fruit to continue the succession.—A. BURTON, Brocket Gardens, Hatfield, Herts.

Cinerarias in Pots.

The time is drawing near when the seeds of these plants should be sown. Pots or pans should be filled with a compost of light sandy soil, made firm. Place the seeds thinly over the surface of the soil and slightly cover with fine sifted soil, and then with a sheet of glass, and set the pots in a shady position in a cool span-roof or frame. The glass should be tilted when the seedlings appear, and finally remove it so as to give them plenty of light and air. When the seedlings are large enough to handle they should be pricked off into boxes or pans, and be kept close for a time. After about three or four weeks in the boxes or pans they should be sufficiently rooted to be shifted into 4in pots, and as soon as the plants have root hold take them into a cool frame and give plenty of air on all favourable occasions. As soon as the pots are full of roots they should be shifted into the flowering size; six or seven inches is the best. A compost of turf, leaf soil, lime rubble, and a little dried cow manure will do. Pot them nice and firm. Continue to keep them in a frame and syringe them throughout the growing season, shading on bright days. On no account let them get dry, as these plants like plenty of moisture and a cool bottom. As soon as the frosty weather sets in they should be taken into a cool house and be placed on a shelf near the glass. Feed them occasionally with liquid manure, and if greenfly should

appear nothing could be better than to fumigate them. If attention is given to the watering they should give every satisfaction.—P. EDEN, Heslington Hall.

Opportunism.

If we examine this word in the dictionary we find the explanation generally runs something like the following: "Practice of regulating principles by favourable opportunities, without regard to consistency." I will do my best to try to explain how much I think this opportunism has to do with our successes and failures in the gardening world. When we recognise that most of us gardeners are continually shifting from place to place, and thereby have to fit ourselves into the many different surroundings encountered, then we must begin to realise how large a part opportunism plays in the making of our careers. Then also we come to the conclusion that this opportunism is worth watching. We will say a young man has just finished his three years as improver, and is leaving to take perhaps his first charge. What visions he will have as to how he is going to treat the different things he will be held partly responsible for. Then, perhaps, comes his first knock down, as it were, when he finds that this or that class of plants is treated in an altogether different way from what he has been used to. We sometimes fail to consider the differences that go to account for that different treatment, and we label this (to us) new way as altogether wrong. It is the man who most readily fits himself to the existing surroundings who is generally the most successful.

Let me give another instance. A decorator is just taking up his new situation, where he is to act in the same capacity. He may be the best decorator in the world, and yet fail because of his lack of opportunism. Maybe the lady he has just left had splendid taste, and has infused some of it into him. He brings it with him and tries to force it upon another whose taste differs altogether. Is it not then to his own advantage to try to realise the different conditions as quickly as possible?

Remember when we do anything for ourselves we do it to please ourselves, and so when we engage to do anything for others, we must away with self, and endeavour to please those whom we are dependent upon for our living. Perhaps I have treated this subject rather short-sightedly; but if the readers of "The Domain" will look at the instances I have tried to illustrate with an open mind, I am sure they will have much food for thought, and, I hope, a little help in some of their difficulties.—H. W., Haywards Heath.

The Herbaceous Calceolaria.

What a pleasing and most welcome addition to the conservatory this is during the early summer months! Its brilliant colours contrast well with the various other seasonable subjects, lending tone here and there and giving a pleasing effect to the whole. Beautiful as they are, we can but wish that they were more successfully grown than we often see. It is comparatively easy to bring them to perfection when their requirements are understood. Having met with success myself, I venture to offer a few hints which I hope will encourage any who have failed to reach perfection mark. The most important points to ensure success are a cool, moist, and airy atmosphere, careful attention to watering, a suitable rooting medium, and to keep the plants steadily growing on without a check; good drainage is also essential at all times. Obtain seed of a good strain (James's strain is excellent), and from a reliable firm. Sow in July in well drained pans filled with a compost consisting of loam, leaf mould, and silver sand in equal parts, finely sieved. Press down gently, and sow the seed thinly and evenly, but do not cover, as the seed is so small. Carefully soak the pan in chilled water, and place in the coolest part of the greenhouse. Cover with a sheet of glass and place a piece of paper over to exclude light.

As soon as the seedlings appear lift the pan well up to the light, remove the paper and tilt the glass a little for a few days, then remove altogether before the seedlings become drawn. Shade well from the sun and prick off when large enough to handle in pans prepared as for seed. When nicely established place the plants singly in small pots according to size. Grow on in the same position, admitting air whenever outside conditions permit. The potting on into 6in pots should be done before the rootlets become matted together. If allowed to become root-bound the plants become stunted and turn yellow, and seldom regain their vigour afterwards. Use a compost consisting of two parts good fibrous loam, one part each of leaf mould and old Mushroom bed, and plenty of silver sand. Pot fairly firm, and return to the greenhouse shelf. Water carefully and admit air freely. Keep the surroundings moist by damping in between the pots, and spray the plants lightly once or twice a day during bright weather. If green fly appears fumigate at once with a nicotine compound. As soon as the roots show fairly well round the sides of the pots the plants will require their final shift, which will be 8in, and 7in for any weaker plants. The same compost as before is advised, with the addition of a little more Mushroom manure and a sprinkling of soot. Pot firmly, not too hard, with a wooden rammer,

taking care not to break the leaves, as they are very brittle. Water very sparingly now and until growth advances in the spring. Damping must also be discontinued, and all decayed foliage picked off, or the damp will spread. Carefully stake out the flower shoots as they advance, and feed the plants with liquid manure when well rooted, and await results. Some growers prefer to grow them in cold frames through the summer, and house them when the frosts arrive. Personally, I prefer the greenhouse where they can occupy the same position from seed to flowering stage. Treated this way we have grown plants measuring nearly 3ft in diameter and covered with a wealth of large blooms.—W. DAVIES, Leigh, Tonbridge.

Tropaeolum speciosum.

This plant does not in every place flourish as well in England as in Scotland. The reason why, in my opinion, is that although in Scotland it likes a good sunny position, also in some parts of the North of England, it does not, as a rule, take to that position in the warmer counties. If it were planted on a north wall where it could once get a start in a nice rich loam, close to the corner where the western wall joins, and then when once it has got hold allow it to ramble along the west wall to greet the sun, this beautiful plant would become more common in England, because it would succeed. It would make a worthy addition to our small list of flowering climbers on a shady wall. It seems to be regarded as a plant that must have sunshine, and plenty of it, whereas I have seen it make even a north wall look beautiful with its little green leaves and scarlet flowers all the summer, and in this position the foliage will often turn to a most pretty tint of yellow in the autumn. If it once takes to a certain position, it will then send its long slender roots a long distance, but it is more safe in a cooler situation. The yellow one (*Tropaeolum polyphyllum*) does not grow very high, but with its butterfly-yellow flowers it is well worthy to become more common also. But this one does not like the shade, and does well climbing up rustic stumps. Being tuberous-rooted, it stands transplanting much better than *T. speciosum*, which does not like it at all.—F. H. W.

Strawberry Plants for Forcing.

We have not as yet finished with this year's plants, but to get the best possible results next season it is time to turn our attention to securing stock plants. Those in the beds are fast making runners. Two-year-old plants will be found to produce the best, and a good method is to turn those runners that will be required into alternate rows, then they will not get injured when picking the fruit or cleaning the plants. By the end of June these will be ready for pegging into 60-sized pots. Some growers prefer placing a stone on the plantlet, as this helps to hold the moisture in the soil, which is a great consideration, as such small pots soon get dry in the full sun. Old brooms will provide pegs, and old potting soil will suit them this time. When the roots reach the side of the pot sever the runners from the old plant, and place them in full sun and damp them occasionally. In a week's time they will be ready for their final shift. It will then be the first or the second week in August; 32-sized pots should be used. All that is required in the way of compost is a good loam, with an addition of spent Mushroom dung. Pot firmly and keep the crown well up; also crock well, as a lot of water has to pass through these before the plants have finished. A little soot should be sprinkled over the crocks to keep out the worms, then place them in full sun. All that will now be required until October will be to keep them free from weeds and runners. Give good attention to watering. By then they should have lights placed over them to keep off heavy rains. If lights cannot be had for all of them, those that are left should be plunged in ashes to keep the pots from getting broken by the frost. The first week in December will be time to start forcing the first batch. Attend to drainage, and place on a shelf in a temperature of 45deg to 50deg at night. An early fruit house will suit them. Syringe on all favourable occasions. A gradual increase of temperature should be given, and by the first of February this should be 60deg to 65deg at night to afford ripe fruits early in March. Other batches should be brought in at regular intervals, and be given similar treatment. Eight fruits will be sufficient on each plant. When these have set give a sprinkling of some quick-acting fertiliser, and water it in. After this frequent applications of liquid manure should be given until they begin to ripen, when this should cease. Plants with ripe fruit on will benefit by being placed in a little cooler and drier atmosphere during March. After this month most houses get enough air to give the fruits flavour.—J. GRICE, Coombe Cottage, Kingston.

London Branch of the B.G.A.

A meeting of the members of the London branch of the British Gardeners' Association will be held on June 13 (Saturday), when Mr. E. F. Hawes will conduct the party to Regents Park and the Royal Botanic Society's garden.



Hints in Season.

Many who have had little experience in bee-keeping are perplexed by what they have heard or read about the size of frames to be used. They will be well advised if they adhere to the "Standard Size." Those best qualified to judge are agreed that the only change needed is additional strength in the top bar.

Preparing Shallow Frames and Sections.

The bees will soon be ready to use the supers, and the wise apiarist will fit up the shallow frames with foundation, wired, also sections, with full sheets of foundation. It is useless to give the supers to the bees before they are ready for them, as this will only help to retard brood raising by keeping the brood-chamber cooler. On the other hand, much mischief is caused by withholding the supers, for this causes the bees to loaf about, because there is insufficient room for storing and brood raising, and eventually they develop the swarming fever. Generally speaking, when the upper cells of the brood frames are faced with new or white comb we may be certain that the time has come when more room is required.

If we have decided to work for comb honey it will be found that the bees will take to the sections much more readily if a rack of drawn-out combs is first used, as the bees work much more readily in shallow frames than in sections. When the bees have acquired the habit of going above, then replace the shallow frames by sections. If this be impossible the centre of the section rack may be filled with sections containing drawn-out comb. Some of my friends are strongly in favour of dispensing with queen-excluder zinc when working for comb honey. Those who have tried it say that the advantages far outweigh the disadvantages of a little occasional brood in an odd section. There is one point often lost sight of, and that is warmth. Draughty and cold sections are doomed to be a failure. When the crate is placed on put plenty of packing tightly round it, so that it may be very cosy, and after the quilt has been laid on very flat, place above this a sheet of brown paper and then one or more coverings. Remember these coverings do not make heat; they simply prevent the escape of heat, and what will prevent its escape will also keep out the heat when the sun becomes very powerful. A clothier's shop is no warmer than any other shop. These coverings are simply non-conductors.

When working for extracted honey make the racks as warm as possible by adopting the same coverings as advised. In each case tier when the lower crate or rack is two-thirds full. There is one danger in the case of working for extracting honey, and that is the apiarist does not wait until the cells are sealed over. The honey from such combs is not ripe, therefore it will not keep well, and it has been robbed of its fine aroma, and consequently you are liable to lose customers, and certainly the value is considerably lowered.

Swarms and Foundation.

Those of us who have made advancement in bee-keeping have made too free use of foundation, and have not made the use of the bees' own natural product as we ought. Foundation is very valuable without a doubt, but we may abuse it and lose money. All the honey-producing season the bees secrete wax, but not to the same extent as they do when about to swarm. This may be proved by examining bees that have just swarmed, for scales of wax may easily be seen protruding from the wax pockets. Further, when a swarm has been hived in a hive fitted with full sheets of foundation, the floor may be seen littered with the scales, and it was this fact that first made me seriously consider the matter of what one might term the abuse of foundation. What then ought we to do?

Fit the frames with narrow strips of foundation with "worker base" in order to guide the bees where to build their combs, and as a swarm generally build worker combs the first season, all will be done cheaply. On the occasion noted above a swarm filled ten frames with comb in a week, and the queen had filled more than half with eggs in that time. Some may say that it would be better to use drawn-out combs, but the disadvantage of these is, when the swarming season is at its height there is generally a good honey flow on, with the result that the bees set to work to store in the brood chamber that which ought to be in the supers, and this further prevents the queen from rearing a sufficiency of brood. Generally speaking, the bees will not store above the brood chamber after having commenced below, and many times I have observed that a good swarm accompanied by a prolific second year queen has been very weak at the end of the honey flow, and sometimes none has been stored in the supers, while the brood chamber has been practically full of honey from end to end. Then drawn comb may be used

above with great advantage, and the results will surprise many who try the experiment.

Supering.

Last year a friend of mine tried, at my suggestion, the following:—The bees were ready for supers, and as he always puts on sections, I lent him some shallow frames containing drawn-out comb, whilst one colony had sections placed above. Those crates containing frames were occupied before the whole of the work was completed, but the sections were severely left alone. In a few days, when the habit of storing surplus above had been formed, sections were substituted, and the work went on merrily, but the sections first named were still tenantless, and the bees swarmed eventually.—HYBLA.



Hardy Fruit Garden.

MULCHING YOUNG TREES.—Apples and Pears that have only been planted a year or two, if bearing a number of fruits, will derive much benefit from a mulching of manure. This need not be strong, the strawy material turned out of stables will answer admirably for preventing evaporation, and maintaining the soil about the roots in an equable state of moisture. Growers having soil of a sandy nature to deal with will find this mulching particularly beneficial.

AMERICAN BLIGHT.—Take prompt measures against this pest; it is liable to reappear about this period, and if properly dealt with at once much annoyance may be prevented in the future. A forcible washing with clear water from the garden engine will destroy a number of the pests; old crevices in the bark may be touched with paraffin if time can be afforded, this being found to kill many of the embryo just as they are hatching. The insecticides generally recommended usually contain petroleum, and in consequence must be used with caution, or the foliage is liable to be damaged.

PEACHES AND NECTARINES.—It will be found needful to lay in or retain a sufficient number of young shoots for carrying next season's crop of fruit, and for the proper furnishing and extension of the trees. Keep down overcrowding of the shoots by pinching so far as is possible. The use of the knife, as a rule, proclaims that the attention to thinning is of a tardy character, and should have been carried out earlier.

STRAWBERRIES.—Protection from birds is the chief requirement for these just at present. Very heavy crops appear to be the rule over the whole of the country. Clean straw must be used now, it is too late to use litter, though long grass we have found to answer the purpose very well; never use lawn mowings, as these are a nuisance, adhering to the berries, and encouraging visits from snails.

CHERRIES.—Birds are so desperately fond of these when ripe and ripening, that it is needful to take special precautions when netting them. Double nets we have found to baffle them best, though even these need to be well secured. Have the trees free from aphids before the fruit shows signs of ripening, or the Cherries will be spoilt for table, and after ripening commences it is difficult to clean the trees without damaging the fruit.—J. W., Evesham.

Fruit Culture Under Glass.

FRUIT TREES IN POTS.—A spell of hot weather after a dull period is a trying time for the trees in the orchard house, and entails much watering. To obviate this much good follows a mulch of well-decayed manure. This also assists the surface roots and promotes a healthy growth. Trees laden with fruit that has not yet reached the ripening stage will benefit by daily supplies of liquid manure, and occasional dressings of an improved fertiliser. Much may now be done to assist the wood for next season's fruiting by attention to stopping and thinning out useless wood and training in the wood for next season's work. Young trees fruiting sparsely will require less food and closer pinching to build up firm growths. Trees ripening their fruits should get a thin shade during the hottest part of the day and ample ventilation. After the crop is cleared, give a thorough cleansing by repeated syringings.

PINE FRUITERS.—The Queen variety will now be swelling their fruits freely, and will require more attention at the roots in the shape of moisture. The plants will benefit by a weekly supply of guano, given in tepid water, in small quantities. Maintain a temperature 70deg to 75deg at night, and close early in the afternoon, so that the temperature rises freely. At

the same time give the plants a light spraying overhead, and damp all parts of the house. It may be necessary during very hot weather to shade lightly to prevent the leaves being scorched. When the plants are at the later stages of growth, a drier atmosphere must be maintained to get the best colour and flavour. If it is desirable to retard the fruits, I have taken some of them to a cooler house, and placed those nearly ripe in a cool fruit room.

SUCCESSIONS.—Strong plants that were potted up as advised early in the year will now be making good progress, and require liberal supplies of water at the root, or liquid manure should be given. Care must be taken not to over-water. A slightly lower temperature is applicable. Sucker growths should not be allowed at this stage, and later on only enough for stock purposes. The aim of the cultivator should be a dwarf, thick growth. It may be necessary to give more space to keep the plants sturdy. Plenty of air should be given in fine weather, closing early, and thus save fire heat. At the same time a steady bottom heat between 80deg and 90deg should be maintained.

STRONG PLANTS of the Smooth Cayenne variety should now be kept rather dry at the roots for a time to induce them to come into fruit later on. Any plants that require a shift should get attention as, often if left too long, they form poor fruits, and it is well to get the plants established before winter.

CHERRY HOUSE.—The fruits being cleared, the trees should be given a thorough cleansing and the borders well saturated with water. A mulch of decayed manure also being given to protect the surface roots and to prevent dryness. The leaves should be kept quite free of all insect pests, and kept good to the last. Should black aphids be at all troublesome, lose no time in getting rid of it.—G. W., Brentford.

The Plant Houses.

HERBACEOUS CALCEOLARIAS.—Sow seeds of these valuable cool greenhouse plants in well-drained pans filled with light sandy soil. Being very small the seeds must only be very lightly covered with finely sifted soil or silver sand. Stand the pans or pots in a frame, on the north side of a house or fence. If the soil is watered previous to the sowing of the seeds, no more will be required till germination has taken place. A damp frame, such as this will be, is a favourite harbour of slugs, which must be carefully watched for.

TABLE DECORATION.—In many establishments the supply of plants for table decoration is an important item. Foliage plants are as a rule the most useful. The young plants of Codiaums (Crotons) and Cordylines (Dracaenas) rooted from cuttings early in the present year may be transferred to a size larger pot. Give them a sunny position near the glass in a warm and moist house, syringing them several times a day. Here the leaves will colour up and make useful plants by the coming autumn. Avoid overpotting table plants; if anything it is better to err in the opposite direction. There being plenty of room in the propagating frames at the present time, cuttings of Selaginellas, *Panicum variegatum*, and *Tradescantia* can be put in. These are very suitable in small pots for placing on the dinner-table.

WINTER-FLOWERING PLANTS.—Now that the houses have been cleared of the summer bedding plants, these may be potted, and given ample room to develop. The cool greenhouse subjects should be placed in frames; these include *Salvias*, *Eupatoriums*, and *Peristrophe speciosa*. The following will be better in a house where a moderate amount of moisture is maintained: *Plumbago rosea*, *Jacobinias*, *Reinwardtias*, *Begonia Gloire de Lorraine*, &c. *Centropogon Lucyanus* is very useful for growing in hanging baskets.

CHRYSANTHEMUMS.—As the potting of these proceeds they should be staked, and stood in their summer quarters. When a piece of ground in a sunny position and sheltered from north and east winds is available, it should be covered with several inches of ashes, and the plants set out in rows 6ft apart. Failing this place a row on either side of a broad path in the kitchen garden, preferably running east and west.

GENERAL REMARKS.—Plants of *Campanula pyramidalis*, which are pushing up the flowering growth, will need staking. Copious supplies of liquid manure will be very beneficial. Shake out the tubers of *Gesnera Exoniensis* from the old soil, and start them into growth in the propagating house. They may be potted up singly in small pots, or a number laid out thinly in shallow trays. Prick off seedling *Primulas* into pans or boxes, and encourage them to make short sturdy growth by keeping them on a light shelf near the roof glass.

HOUSES.—Admit air freely night and day to the houses, especially the cooler structures. The hot weather has caused many flowering plants to fade rapidly. To check this as much as possible shade during the brightest part of the day, also damp the stages and paths three or four times daily. In the stove the shoots on the *Allamandas* must be carefully trained, and those of *Bougainvilleas* judiciously thinned.—A. O., Kew, Surrey.



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BEDDING ARRANGEMENTS (G.).—You will find some notes in this week's issue.

HORN SHAVINGS (Spider).—Horn shavings are parings of horses' hoofs. The hoofs of these and of cattle are converted into glue. The parings contain 14 to 15 per cent. of nitrogen.

FUNGUS ON PEAT (F. W.).—We could find no fungus on the peat you sent. It was all loose in the box, and was only a mass of dry powder. We should remove the surface soil if much infested with fungus and replace with fresh soil.

TESTING AN INSECTICIDE (Consul for the Netherlands).—Apply to the Royal Horticultural Society, Vincent Square, Westminster, at whose gardens in Surrey official tests and reports are made, and are regarded as of the highest value.

VINE LEAVES (S. C. G.).—Your Vine leaves appear to have been attacked by thrips, and then to have been scorched, they being weak and sapless from the effects of the thrips. You should get rid of the worst of these leaves, and endeavour by all legitimate means to encourage fresh, good growth.

DESTROYING APHIDES ON MARÉCHAL NIEL ROSE (Subscriber).—Boil 4oz of quassia chips for fifteen minutes in a gallon of soft water, strain and add four more gallons of water and syringe your Rose. We think this will destroy the aphides without injuring the blooms. The "slimy substance" will probably disappear when you have destroyed the insects, and especially if you apply liquid manure to the roots of the Rose.

NARCISSUS FLOWERS NOT DEVELOPED (X. Y. Z.).—The flowers are in the condition popularly known as "blind." Various reasons have been assigned for such defects, but no real reason has been given. In some cases the very common grey mould named *Botrytis cinerea* has been found springing from the destroyed flower buds, the parts being blackened as in your specimens. We find no trace of this pest, though possibly the outgrowths would appear later on under damp atmospheric conditions. Possibly the defectiveness arises from some deficiency of soil constituents, such as lime and phosphoric acid, therefore we should give a top-dressing of basic slag, say 1lb per square yard, and point it into the soil as deeply as may be done without damage to the bulbs, and given now would probably tend to a better formation of the flower buds in embryo, and secure a more perfect development another season.

TRICOLOR PELARGONIUMS LOSING COLOUR (Neworth).—It is not uncommon for plants struck in a propagating house and grown on in heat to lose colour when brought into a lower temperature. The cuttings should be struck in a temperature very little higher than that in which the plants have been grown, and when struck they should be at once removed. The main point is to secure progressive growth; whereas when the plants are grown in heat they receive a check when brought into a lower temperature, growth ceasing, and the colours go out because there is no new foliage produced. Another cause of want of colour is growing too rapidly in shade, whereas it is light that brings out colour. A light airy house and a temperature of 50deg by artificial means is desirable until the close of May, after which a cold pit or frame is more suitable, air being admitted freely in wet weather when it is desirable to keep on the lights to ward off rains; and in bright weather a light shading should be given from powerful sun. In mild weather and at nights in hot weather the lights may be drawn off, but the plants must be protected from heavy rains. Be careful not to overwater, and avoid a too rich compost, a healthy root-action being essential to progressive growth, upon which depends the beauty of the plants.

FUNGUS ON ROSES (Surrey).—We think your Roses are infested with the orange fungus. Sponge the leaves with 2oz of blue vitriol (sulphate of copper) dissolved in hot water and added to two or three gallons of cold water.

QUICKLIME FOR GARDEN (Idem).—It is not injurious if used when cool and in a freshly slaked or finely powdered state. A few applications at weekly intervals will free the ground from slugs, but it must be applied in the evening or early morning, best after rain.

YELLOW FLOWER AFTER TULIPS (A. H.).—The flowers you send are those of *Allium Moly*—allied to the Onion and Leek plants. The bulbs must have been planted among the Tulip bulbs in order to continue the succession of flowering. There is no freak!

GRAPES SCALDED (Somerset).—The scalding in your case was the result of the sudden outbreak of sun after a long period of dull weather. We think with the treatment you are giving the Vines that the injury will not extend, and that shading will not be necessary. Without knowing the size of the bunches we cannot say whether your Vines are too heavily cropped or not. With the number you have left on they should not average more than a pound in weight.

BLACK BEETLES, WORMS, AND CENTIPEDES (Clocks).—Beetles are injurious to plants by devouring their foliage, especially that of plants in the seedling state. Earthworms are also injurious to plants in pots; they choke the drainage and displace the soil. Centipedes often do harm to plants. The worms may be destroyed by flooding the pots with lime, 1lb of lime to three gallons of water, well stirred up. Let it stand forty-eight hours, employing the clear lime water. The beetles and centipedes must be captured.

ORCHIDS FOR IMPORTATION (O. C. H.).—From Manilla several species of *Phalenopsis* may be sent, but the best are *P. Schilleriana* and *P. amabilis*, but they will not travel safely unless they are established on native wood before being sent. *Cypripedium laevigatum* is also found there and is a very choice and rare plant. From Rangoon may be sent *Vanda cerulea* and many species of *Dendrobium*, including *D. thyrsiflorum*, *D. Bensoniae*, *D. Wardianum*, *D. crassinode*, &c. *Aërides Schilleriana* is a rare species found in Burmah.

CUCUMBER BLOSSOM AND TENDRILS (H.).—Unless seed be wanted the male flowers are of no use and may be removed, also the tendrils; but we do not trouble about either, having no time for such minutiae. A plant a yard high ought to show fruit, our ambition being to obtain fruit as soon as we can, and successionally with the increase of growth. We stop every shoot, and expect to have fruit at every second or third leaf produced; but then we want them for table purposes, not for exhibition. If you want the latter you must allow more foliage and take less fruit.

CARPET BEDDING PLANTS (Kittie).—The best way to preserve *Alternantheras* is to take up the plants early in the autumn and pot them in a compost of loam, leaf soil, and sand, and winter them near the glass in a warm house. These plants will afford plenty of cuttings for striking in the spring; spring-struck plants being preferable to plants struck in the autumn. They cannot be preserved and prepared without heat. *Mentha Pulegium gibraltarium* is hardy, but it has suffered from damp during the late wet winter. It is advisable to protect it with handlights. *Lobelia pumila* is best sown in September and wintered on a shelf in a light greenhouse.

SOIL FOR VINE BORDER (J. W.).—Good Grapes have been grown without the addition of bones in the border, yet we strongly recommend them. A good compost for Vines is the following:—The soil should be porous and moderately rich. The bulk of it ought to be chopped turf from an old pasture; if neither too sandy nor too heavy this alone would grow good Grapes. To ten barrowloads of this turf soil add two of broken oyster shells, old lime rubbish, or a mixture of the two, which is preferable; one of horse droppings, one of charcoal, and half a bushel of broken bones. Do not use quicklime, nor leaf soil, nor decayed wood, which might breed fungi, so destructive to living roots.

NAMES OF PLANTS.—Correspondents whose queries are unanswered in the present issue are respectfully requested to consult the following number. (J. L.).—*Limnanthes Douglasii*. (A. H.).—*Allium Moly*.

Trade and Miscellaneous Notes.

Messrs. Wm. Paul and Son.

In Messrs. Wm. Paul and Son's advertisement facing the leader page in our last impression, the value of the silver-gilt cup won by them in 1904 at the Temple Show for the most meritorious exhibit was stated to be of the value of twenty-five guineas. This should have read fifty-five guineas.



Our Root Crops.

It is an old story, told many years ago by "Punch," with a suitable illustration, of the meeting between the vicar of the parish, lately returned from the "Holy Land," and his principal parishioner, a large tenant farmer. Thinking his friend would be interested in particulars of the world-famed spots, the vicar dilates on the beauties and glories of the Land of Promise, but the only remark elicited from the farmer was, "And how may turnips be looking in those parts?" Needless to say, the season of the year was June. Corn, wine, milk, and honey are all very well as products of the far-off Canaan, but farming that does not include either turnips or mangolds appears incomplete to the old Yorkshireman. Yet, after all, turnips are, as one may say, but a modern innovation. How the winter used to be got through without roots is a puzzle to us, for we know how difficult it is to keep all stock going even with a good breadth of roots. We have our useful white turnips in the back end, making a most admirable change for young sheep. We have our swedes as a stand-by through all the weary short days of winter, a winter that lengthens out unconsciously; and then the handsome pie of mangolds for spring and summer use. Of course, with the roots, a very much larger head of stock can be maintained than in the days of our forefathers. We are fattening bullocks all through the winter; we are "turnipping" sheep during the same dull period; and there is never a perceptible shortage in the markets. Grass feeding ended with the autumn, but it has to be good grass to really finish off any stock in tip-top condition for the butcher. The grass-fed beasts of olden times knew not the taste of cake in any form or shape. They depended entirely on the herbage, unless, indeed, a far-seeing farmer supplemented that food by a little corn. No doubt there were men then so much in advance of their fellows as to recognise the utility of allowing their stock "a little of something" that would lessen, by a week or two, the period of fattening, and also that would make the carcass heavier, and therefore more valuable.

What experiments must have been tried with the first root crops! It would be a little bit of a lottery, for all farmers would want to provide themselves with these capital winter foods. There would be some gigantic successes, and some ghastly failures. In all probability, given favourable conditions and judicious cultivation, some of the early crops would be very fine: the land was fresh and ready for the experiment. But observant people would soon begin to find out that all land was by no means suitable for root cultivation, and those who farmed strong land would get very sick. There is no doubt about it that the cultivation of turnips turned the large area of wold-land in England into a little gold mine. Light and easily-worked, it was always possible to get a good seed bed, and with accommodating showers the crop was a certainty. Not only was it a certainty, but also it produced a wonderful improvement in the next corn crop. The tillages used for the turnips, and the better manure contributed by the sheep themselves, with a certain solidification of the land, produced marvellous results, and the improvement both in the quantity and quality of the barley and oats was simply immense. It was in those days of high priced corn and dear wool that the farmers made money; and in those days, too, they knew how to keep it. There was little or nothing to tempt them from home save the weekly market, and to the sporting man an occasional day "to hounds"; but that was part of his business, as he always had a useful good-looking youngster or two for disposal; and also the hunting farmer had the chance and opportunity of selling his best oats to the Master, or some of the wealthy members of the Hunt. A man who did not mind his land being ridden over, and a few gaps made in his fences, was entitled to the chance of making an extra shilling or two per quarter of his horse corn—and did.

To say that the cultivation of roots is an easy matter is to deal lightly with the truth. Like most other processes, success depends on taking the land to be cultivated in hand early enough. How early? Well, as far back as last autumn. Then the plough must have been at work turning the soil to let it enjoy and profit by the frost, the rain, and the drying winds; and also to kill, as far as possible, any growth that would interfere with the well-being of the little plants. There will be weeds enough at hoeing time—goodness knows where they all come from, part of the inherited curse we suppose.

The work in the spring is to prepare a fine seed bed, and also as far as possible to conserve any moisture that lies below, storing it up as it were for the future use of the plant. The old

story: the cleaner the land the better and the richer. The plants are so small they need something to give them a real good start, for their enemies are many.

As to the system of drilling on the flat, as against the ridges, different parts of the country have their own practices. There is no doubt about it that in the Northern counties of England and the Southern of Scotland, turnip growing assumes the proportion of a fine art. The cooler moister climate (and being North Country born we will venture to say it) and the better cultivation are responsible for this.

In the South, as Professor Wrightson says, root cultivation presses so closely on hay-time that one or the other stands in danger of neglect. Grass must be cut when it is ripe, carted when it is fit, and at the same time the turnip plant requires constant attention from the hoe, both horse-drawn and man-wielded. The Professor says he can distinguish between the plant of the charlock in its early stages and that of the baby turnip. The charlock we may depend upon finding; the turnip sometimes disappoints us. We have not mentioned the fly and its ravages. Strange that so small a thing can do so great harm. But the fly, though feeble, comes in its millions, and we are helpless. As we said before, there is one way to minimise the risk, and that is to supply the turnip plant with such good food that it quickly will grow out of the reach of its enemy. A timely shower is worth so much per drop. Would that the shower always was timely! A deluge makes the land cake, and the remedy is worse than the disease. Once assured of a crop the farmer may rest contented. The later hoeings can be done on odd days: done, but not omitted. Nothing beats keeping the land stirred till the plant is out of danger.

The Warble-fly Again.

There is a pest that does incalculable harm to stock living and to their hides dead. The harm to the living animal is that of a vigorous parasite preying on flesh and blood, and causing endless irritation and vexation. It is not possible to rest in peace, or feed in peace, when in a state of itch. How the warble grub gets under the skin appears somewhat of a mystery. There are several suggestions offered, but there it is, and the best way to eject the sitting tenant appears to be to squeeze him out and destroy him. We had an idea that dressing the skin with a highly flavoured preparation would prevent the trouble, but we are told the practice is not only useless with regard to the warble bot, but also injurious to the skin of the host. It is a tedious business squeezing out each separate individual, but like many other tedious operations, it is very effectual. Of the injury to the hides the farmer perhaps hardly cares; that does not come within his province. If the butcher gets less for the hide, the farmer is not concerned. Doubtless he thinks the gentleman of the blue coat has scored off him!

Work on the Home Farm.

We are enjoying fine weather for work, as we miss all the thunderstorms which pass near us. There is plenty of dust behind the turnip drill, but in some places too many big clods to suit our fancy, and we should like to be visited by one of these storms to help to break them. Red clover is getting very big, but does not show flower yet, and it will have further time before cutting. Some fields standing to mow for a second year, and principally rye grass, which we see here and there, will do little more good for this crop, and we should be cutting and making it as soon as possible. There will then be a prospect independently of the weather of some valuable grazing for lambs in August.

It has been fine for cleaning the last turnip fallows. Wind and sun soon dried the nature out of every bit of twitch, and no rakes have been needed lately. We have finished ploughing, but put the spring-tooth drag through instead. A set of strong seed harrows, followed by chain harrows, do the rest. Mangolds are a very fine plant, and have grown well since they were side hoed. Many are a good size, but some are small. As they are rather crowded we think they should be hoed and singled out. Good men with hoes would reduce their numbers sufficiently, and the singling and cleaning may be left another week.

The potatoes in some fields are not growing as rapidly as they should. They were planted when the land was wet and cold. They want air and tilth, and the skerry must be freely used to get them ready for earthing up. In these fields the crop is very uneven, some plants being fifteen inches high and others barely above ground.

The wool sales are just opening, but we never knew such a difficulty in fixing prices. Merchants are coming round looking at clips, but they do not ask the price, they only wish for the first offer after a while. There is no doubt that the difference between buyer and seller will be a very wide one.

Feeding sheep now they have their wool off and there is plenty of pasture have done exceeding well, and there are more good wethers in the country than usual. Cull hogs bought in March must be leaving a very fine profit for a few weeks' keep, but farmers are not keen sellers, and we think they are right. With plentiful seeds this year and a promise of the same for 1909, sheep must be held.



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Journal of Horticulture.

THURSDAY, JUNE 18, 1908.

Floral Decorations.



THE epithet "flowery" has been applied to June, at least ever since our Elizabethan forefathers composed madrigals and love ditties; and it is indeed a season when Nature runs riot with her wealth of flowers—a season wherein the world reaches its perfection, as Emerson would say. With its flowering trees and shrubs, its meadows covered with Buttercups or Moon Daisies, and its hedges wreathed in wild Roses, it is a month which is unequalled in its floral displays in wild Nature.

Nevertheless, one has often heard the remark that there is a difficulty in getting a sufficient supply of cut flowers for the house at this season, spring flowers being over, and summer flowers not arrived in their multitudes. There is undoubtedly some truth in this contention, for in our gardens things are not at their best by a long way, at least in the earlier half of the month, there being a general appearance of recent planting out, while the perennials, with few exceptions, are still collecting and storing up energy for the great burst in the two succeeding months. Still, there is a good deal of material, either in the garden or out of it, which is available for making some of the most effective table decorations of the year, and it is hoped the following notes may contain a few suggestions for some.

One of the garden glories of the month is the Pæony, the old-fashioned European varieties leading off and being succeeded, after a short interval, by the Chinese. They should be cut with long stems with the foliage intact, and arranged in large vases, or in a jar set in a coal caldron in the fire-place. They are better by themselves than with other flowers, and better when all are in the same receptacle of the same colour. Solitary blooms in specimen glasses, too, are not ineffective. I have seen clumps of the Chinese varieties bearing a hundred

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blossoms each, and such are a fine quarry for the lady members of the house.

The Sweet Pea is generally associated with July and August, more especially July, but by autumn sowing they can be obtained in flower from the beginning of June; and whatever plan is adopted for the main crop, some should always be sown in September and kept in a cold frame through the winter, so that in this month of June, when flowers in the garden suitable for cutting are often none too plentiful, we may have a good row of Sweet Peas, as these produce more material for cutting from a given space of ground than any other flower I know. Nothing goes better with them than their own buds and tendrils, and though I think the finest effects in general are produced by one colour only in a vessel, the blending or contrasting of the different shades gives a scope to the colourist which is very fascinating. When Sweet Peas are to travel, or are to be carried any distance, they should always be cut quite dry, as they easily bruise and become "spotty" when damp.

The Rockets, both single and double, are deliciously sweet without being too strongly scented, and if cut with long stems they lend themselves to very effective tall arrangements in conjunction with other tall, semi-wild things, such as Leopard's-bane, and the old-fashioned short-spurred Columbines—still beautiful, notwithstanding the long-spurred forms which succeeded them.

The long fronds of Solomon's Seal, still in their full beauty of foliage, though the flowers may have dried up, are useful for large schemes where there is plenty of room, such as fire-places, halls, &c., but they need a few bright flowers to show them up. Where it makes large bushy plants *Dielytra spectabilis* provides handsome sprays which go well with them, as do any tall things such as those mentioned in the preceding paragraph. Another subject useful for the same purpose is the Spanish Iris, which is an admirable plant for cutting, and, being of slender growth, produces so much blossom on a small space of ground that it should be grown specially for cutting on a reserve border in the kitchen garden. It lasts a long while when cut, and buds open well in water. June is the month of the Iris, and though the germanica section is usually over early in the month, most of the other sections of the tall bearded flag type follow on in relays throughout the month. The Spanish Iris is of varying height, varying from 15in to 30in, the foliage being of a much smaller character than that of the Flag Iris, and thus many of them can be used for the lighter and smaller forms of table decoration as well as for larger arrangements, while the Flag Iris lends itself to the latter only. As a rule a few Flag Irises cut with long stems are enough for a large vessel, no other foliage being necessary than their own, while any crowding spoils the effect. The end of the Iris season is supplied with *Iris xiphoides*, known as the English Iris, perhaps the grandest and most effective of all the family for cutting.

Another flower for which June has become famous in recent years is the Pyrethrum, and it almost takes the position occupied by the *Chrysanthemum* in the autumn. The double varieties especially provide a deal of material at a time when good specimen flowers are not general, and they have the additional advantage of lasting longer in water than almost any other flower if picked in their earliest stage, as indicated by the centre of the flower or disc florets.

Flowering shrubs and trees may be made good use of, especially at the beginning of the month. One of the prettiest combinations of this character is afforded by Laburnum and Wistaria, and we may use it either for the smaller table decorations or for large effects. One of the glories of the month is the Rhododendron, though one needs a pretty large display of them to be able to make effective arrangements of them without making visible gaps on the shrubs. They need to be cut fairly long and arranged in large groups, choosing sprays of upright character for convenience of arranging. Lilac is perhaps never better than by itself. The wiry-stemmed varieties, mostly old-fashioned, are apt to droop very soon after they are cut, but those with a stouter stem, especially if this is split, or peeled, or put in warm water, last a considerable time, and few things are more beautiful than a large open bowl arranged in a free and yet not slipshod manner. The Guelder Rose has somewhat similar uses, and nothing that can be mixed with it can improve it, though *Clematis montana* has a very pretty effect in conjunction with it. The same applies to the Mock Orange, but its strong scent limits its use, as many object to much of it. Still for the hall or the fire-place of a room in only occasional use it comes in very handy. *Prunus pissardi*, though its flower is over long before June, is still valuable for its foliage, as it mixes so well with yellow flowers, such as Laburnum, Leopard's-bane, the yellow tree

Lupine, and others. The same applies to the young growth of the Copper Beech and the Oak early in the month.

Besides Sweet Peas, mentioned already, there are several annuals which, if sown in the previous summer or early autumn, come into flower early in June instead of a month later, as they do when sown in the spring in the ordinary way. Some of the most useful of these are *Eschscholtzia californica*, Corn-flowers, and Love-in-a-mist—a trio which make as pretty an effect when used in combination as one can wish to see. Iceland Poppies, too, treated as biennials and sown in July, are very useful in June, and nothing is more graceful and pleasing, and one can scarcely go wrong in arranging them except by using too many. Some maintain they are the most graceful of all flowers for the dinner table, and I am not disposed to disagree with them. Unopened buds are a better form of greenery to mix with them than any extraneous matter, unless, perhaps, the wild flowering grasses so abundant at this season. Shirley Poppies, too, may be obtained in early June by autumn sowing. They should be cut in early morning before the sun is on them, and put straight in water, warm being better than cold. The same remarks as to arrangement apply to these as to Iceland Poppies.

Roses must be mentioned, as any reference to June flowers, even in a few suggestions, would be curiously wanting if they were omitted altogether. They are not generally abundant much before the end of the month. Exhibition Roses are not easy to arrange so as to look effective, but China Roses and other decorative forms—though many of these belong rather to July—when cut in bold sprays make simple arrangements which are very beautiful. July, too, is the month of the Lily, but one or two early species are in bloom in June, notably one of the commonest of all, the Orange Lily, which, when well grown, is a really handsome object, and when cut with long stems is very effective for large arrangements, though its somewhat aggressive colour needs the right background.

There are many more things one would like to mention, but it is of no use giving a mere catalogue, as people often do when talking about books. The fields, meadows, and hedgerows provide a good deal of material with which some very beautiful effects may be obtained, e.g., Moon Daisies and grasses—the crimson Sainfoin making a telling addition—Broom, Foxgloves, set up in a heavy vessel in the fire-place, various umbelliferous plants from the hedgerows with some bright flowers for them to show up, &c.

In making the above suggestions I am well aware how great is the difference of taste in such a matter, and doubtless every reader will disagree with some one or more of the suggestions made, though it is sometimes well to try a thing before condemning it.—A. P.

This is the season of Pyrethrums, and Messrs. Kelway and Son, Langport, Somerset, have again sent us a selection of named varieties, of which the following may be mentioned:—

Among the newer singles there are *Finesse*, *Pyrethrums*, nearly pure white, large and good. Langport Scarlet, an improvement on James Kelway, with longer petals and the same brilliant cardinal scarlet. Snow-white, pure white throughout. Stewart Clark, a large flower of bright rose colour.

The older singles comprise General Buller, deep carmine; James Kelway, brilliant cardinal; and Record, an exceptionally fine rose variety. Agnes Mary Kelway is also a good bright

The newer doubles are Empress Queen, blush; Evelyn, bright pink, fine shape and colour; Florentine, blush; Melton, bright but deep crimson, the deepest colour of all, and of good shape; Meteor, crimson-scarlet, with white tips; Queen Alexandra, large pure white; Regulus, rich purple-carmine; Souce, sulphur yellow; Virgo, sulphur. In the older kinds are J. N. Twerdy, maroon; and Nancy, blush white with yellow centre.

Four that do not appear to be catalogued are St. Patrick, heliotrope-pink; Roseen, mauve-pink; Standard, rich crimson-purple; and Aunt Nancy, white, the latter being of Anemone form, the others single.

Messrs. Kelway write: "The single-flowered varieties are veritable 'coloured Marguerites,' and possess a wider range of colour and greater hardness than Marguerites. Their position should be the made border or beds. The plants may, with advantage, be cut down after June, which proceeding will induce a more prolific succession of bloom through the autumn. Pyrethrums grow freely in any ordinary garden soil; a good rich loam suits them perhaps best, and in order to secure size, brilliancy, and number of flowers, plenty of ordinary well-rotted manure may be added to well-trenched, well-drained soil, and plenty of water may be given when they are in bud in dry summer weather. A mulching may with advantage be applied in dry positions; and coal ashes, strewn around and over the crowns in Spring before the young growth starts, will prevent slugs from indulging in a meal to the detriment of the plants."



Cypripedium Lawrencianum Hyeaum.

A splendidly cultivated batch of this magnificent, large-flowered *Cypripedium* was arranged in the Temple group by Mr. F. Montieth Ogilvie, The Shrubbery, Oxford (gardener, Mr. W. Balmforth), who won the silver-gilt Veitchian cup. The flowers are borne solitary, i.e., one flower per scape, the stalks reaching 1ft or more in height. This albino form of *C. Lawrencianum* has a bold dorsal sepal, white with emerald green veins, petals greenish yellow, veined darker, and the pouch similarly coloured. It is a robust grower, liking a warm house temperature. The foliage is mottled, and therefore attractive.

Stanhopeas.

The orchidaceæ contain many subjects suitable for hanging from the roof, but none are more adaptable to that mode of cultivation than the genus named above. The geographical distribution of *Stanhopeas* is chiefly confined to Mexico, Brazil, and Columbia. When the plants are strong and vigorous they become very floriferous, especially *S. tigrina*, the flowers of which are large, handsome, and usually strongly scented; while they always command attention by their beautiful colours and peculiar structure. The lip is a very remarkable organ, being of great substance, and what botanists term saccate, or in the form of a small bag. In the case of the allied genus *Coryanthes* it is more pronounced, and is known as the "bucket orchid." The flower scapes are of a pendulous nature, and for this reason must be grown in baskets to prevent injury to the spikes just as they emerge from the bottom or sides of the receptacle. In addition to *S. tigrina* already mentioned, *S. eburnea*, *oculata*, *Wardi*, and *Ruckeri* are recommended to those who care to take up a group which is rather neglected, but at the same time must be classed among the most interesting orchids grown.

CULTURAL DETAILS.

During the growing season *Stanhopeas* should be accommodated in the warmest division, and be provided with plenty of water at the base, and a moist congenial atmosphere; but after growth has stopped they prefer somewhat drier surroundings, and a rest, with less moisture about the roots, and a few degrees lower temperature. Potting or re-basketing takes place immediately after the plants finish flowering, selecting teak wood baskets of suitable dimensions, to which must be attached copper wire handles, by which they are suspended. Use a layer of dried peat sticks for drainage. The soil consists of polypodium fibre, peat, and chopped sphagnum moss in equal parts, which must be pressed fairly firm, because if this is overlooked they soon become loose and fail to take advantage of the new compost. Extreme care is needed for a few weeks after root disturbance, but once they are re-established the supply of water can be considerably increased with advantage till the pseudobulbs are fully matured.

Coryanthes.

This genus requires the same treatment as advised for *Stanhopeas*, excepting that they ought to be kept in the warm house throughout the year.—T. ANSLISS.

Small Gardens.

How pregnant with interest a small garden may be, and how much real pleasure may be derived from it only those know who have studied the matter closely and worked it out practically. Too often one hears the remark that some particular garden is too small to be of any real value. Now, I can quite understand any enthusiastic gardener—whether amateur or professional—having a great desire to enlarge the garden under their control in order to give fuller scope to their energies and inclinations, because the pursuit of the ancient art to some becomes so fascinating as to defy limitations. What I cannot understand, however, is how the smallest of gardens can be looked upon as uninteresting if managed on suitable lines. It is merely a matter of adjusting aims and methods to, and the taste of, the interested parties.

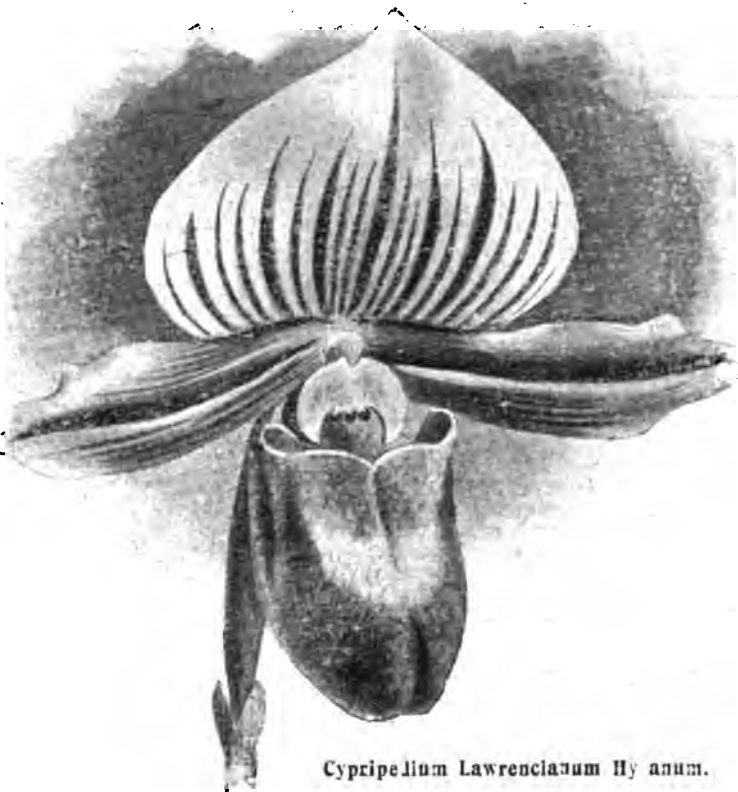
The small, well-kept garden, managed by the single-handed man, may, and often does, show cultural achievements as great as those to be found in gardens of infinitely greater pretensions. Ay! and be invested too with as much interest throughout the greater part of the year. The garden of the cottager also, although only a few rods in extent, will often, during the spring and summer months, vie in beauty as well as interest with those of far greater pretensions. Constant attention, enthusiasm, combined with ideas well carried out, count for so much in the successful management of a garden, whether large or small.

Those who have the happy knack of combining these good points, are able to stamp their gardens with that desirable individuality which cannot be obtained by cut-and-dried methods, or bought at a fixed price.

I have recently seen a striking illustration of the above point when looking over numbers of small gardens of the same size, shape, and with similar surroundings. All were well kept, and contained excellent assortments of popular flowering plants, but there was no mistaking the fact that for real interest, combined with beauty and individuality, one among the number was, to use an expressive term, miles ahead. A few light arches had been erected at well-chosen points, and these were well covered, or rather, gracefully draped, with some of the best modern varieties of Roses. The walls were clothed with Roses, Jasminum, and Clematis. A cosy arbour partially covered with Virginian Creeper in luxuriant beauty, with

Clematis montana entwined between, presented a picture delightful indeed to the true artist. Other creepers in variety rambled at will over light trellis work, and baskets of flowering plants and creepers were daintily displayed where room could be found for them without creating a suspicion of overcrowding. The borders were filled with a great variety of flowering plants, very few being of rampant growth, those that were being kept within bounds by annual reduction, and the whole garden was shown up to advantage by the well-kept moderate expanse of lawn. Thus in this particular instance, beauty, proportion, variety, and continuous interest were maintained by judgment and skill in management.

There are thousands of small gardens in this country which might be immensely improved by being treated on similar lines. Observations made during a number of years over a considerable area has convinced me that a glaring fault in the management of small gardens generally is the futile attempt to reproduce in them the bold features of infinitely larger gardens. In the big establishment there is plenty of space and breadth to allow room for wide drives, extensive expanses of lawns, bold masses or belts of shrubs, and therefore the flower garden pro-



Cypripedium Lawrencianum Hyeaum.

per, to be in keeping with other portions of the domain, needs to have beds of considerable size, and here and there bold masses of colour to create a sense of due proportion, as well as to supply the necessary touches of colour in sufficient volume to be effective. True, one might have clumps of shrubs of considerable size, and a large bed or two, or masses of one particular flower in a small garden, but when such combinations are met with the whole appears singularly out of proportion. It is far better in such cases to employ shrubs sparingly, to let the clumps be small, and arrange the belts with the object of growing light screens. Then do away with isolated beds or groups of flower beds as much as possible, and rely upon mixed borders of well-selected plants kept in clumps of moderate size, and arranged with the object of securing interest over as great a period of the year as possible. Let a few good vases take the place of beds; then hanging baskets, arches, climbers, and rockwork will enable the garden lover to fashion the whole with a due regard to proportion. So managed, a small garden will yield a vast amount of interest throughout the year. There will be some fresh gem ready to unfold its leaves or blossoms each day during the greater part of the year, which is infinitely more fascinating than having a big patch of colour for a few weeks, to be followed by months of waiting for the next attraction to appear. There will, I know, always be some who make a specialty of a few favourite flowers, and grow those in quantity, let the garden be ever so lacking in beauty at other times; but I maintain that to get the fullest enjoyment from a small garden variety should be the keynote in regard to establishment, development, and management.—H. D.

Summer Glories.

Our English spring has had due meed of recognition from writers of both poetry and prose, and in spite of its sometimes atrocious weather has to a great extent become idealised. True it is, springtime has special attractions for all connected with gardening, usually, however, it is a time of hard work and more or less of expectation and looking to the future for the worker, quite apart from its pristine and youthful beauty.

Summertime brings to the gardener, when all has gone well with his plans and labours, a happy realisation of promised joys; a fulfilment of the promises of a usually more or less fitful springtime. In summer we look for the outdoor garden to give of its fulness, both of blossom and fruit; when we look for all that is best in outdoor vegetable crops, and when in the hot days the crisp and tender salad is more than ever in request.

Each season to the gardener has its own special feature which appeals to him in one way or another, according to training and temperament. Some men doubtless look forward with pleasurable feelings to the shortened days of winter, when if labour is somewhat severe it is quickly over, and there is ample leisure for recreation and study. From experience we know there is a distinct setback to this where there is much glass and the heating appliances are not of the best; but with this aspect of gardening we are not at present concerned, though we could write at some length upon the subject at a more convenient moment.

The gardener who has carefully arranged his beds will now enjoy the full benefit of his plans for a summer display. Here is a phase of gardening which appeals almost to everyone, whether or not directly concerned with horticulture. A visit to some of our London parks when the beds are at their best will serve to prove this. The many different subjects used for bedding prove of great interest, and afford much enjoyment to crowds of people of most diverse character and occupation. True it is, no doubt, that but few of the many who daily inspect the flowers mentioned have more than the faintest conception as to the trouble and expense involved in propagating, growing, and planting the immense number of plants required in the parks of the metropolis alone, without mentioning those required for other cities and large towns, or the vast requirements of the private gardens throughout the country. That the displays in their various methods have an educating and elevating influence who will deny? Annually they appeal to an increasing number of interested people, and the ranks of those interested in all branches of gardening cannot fail to be greatly increased from this cause alone. In connection with the bedding done at private establishments, these have not always the means for providing great numbers of choice bedding subjects, but given a fine lawn with a few well planted beds, where will you find a finer or more pleasant picture than may be found in many of our old gardens in summer?

We have spoken at some length upon this matter of summer flower beds, as here we have one of the most important subjects for the gardener's consideration, and one which cannot

obviously be neglected without an establishment as a whole suffering in consequence. But there are other matters for appreciation in the summer season. It is the time of Roses. Roses with their own delightful fragrance and beauty; of climbers and dwarfs and standards, single and double; when the true Rose lover finds exquisite pleasure in admiring, whether the object be a Penzance Briar or one of the exhibition dandies. Queen of flowers! the Rose crowns the season with beauteous glory. Who could refrain from delight and pleasure in a well planted garden of these flowers? Who with the poorest apology for a garden could withstand its claims for inclusion if once bitten with a love for the greatest of hardy flowers? One could write of the delicacy of the teas, of the more robust vigour and floriferousness of the hybrids, and of the h.p.'s, or of the rare beauties now grown as decorative garden Roses. Readers of the *Journal* understand, and most of them must appreciate the Rose in its many forms, even though some may merely appreciate from a prize-winning standpoint.

We must not forget that this is also the time of Sweet Peas. Who could forget these old favourites, for old favourites they are, despite the new varieties and types or sections we are now becoming accustomed to. That Sweet Peas can be expected to vie with Roses in popular favouritism we cannot believe. But no matter, here they are in their light and airy gracefulness, with a fragrance peculiar to the race and to nothing else. Who would care to deny himself these, another of the glories of summer, in our gardens? One which can be grown without great expense, without great scope or space, and yet appeals with equal force of beauty and elegance to both rich and poor. That there is use for these flowers in winter we do not question, nor do we question their beauty at that season; but give us Sweet Peas in summer, when we may have armfuls of their beauty and sweetness, and when the fuel bill is not a consideration in their production.

Of the numerous old favourites in bed and border, which seem almost to tumble into bloom to greet us day after day, we might still write on. The charming Campanulas and glowing Phloxes, the tall spires of Delphiniums, nodding at us from the back of the border. All are part and parcel of a glorious time, each in itself a glory, and adding to the rich fulfilment of the season.

To all these may be added the outdoor fruits as obtained in our gardens. The luscious Strawberry, the delicious Cherry, the fruit-laden bushes of Currants and Gooseberries. All have a seductiveness in their various uses such as can never appeal to us in foreign productions, good as most of these are and beneficial withal. The man who grows his own Strawberries, who takes the trouble to gather them himself for his own breakfast, is a partaker of one of the greatest pleasures in living. In gardens of greater pretensions we may see the ruddy Peach ripening upon the walls, and here, again, we have a product which for beauty is difficult to appraise at its proper value, and this is saying nothing of the intrinsic merits of a well-grown Peach during one of our favourable summers.

In a well ordered garden we seem to arrive at a climax at this season, not only as regards flowers and fruit, but also with vegetables. It may be that these are not readily associated with the glories of summer, but we think they should not be overlooked, as however well managed a garden may prove in other respects, if the vegetable portion is a failure there is want of balance which detracts from the beauty as a whole.

Of the glamour of an English spring we have all read and heard many times. It has its subtle beauties, with which scarcely anything can be compared, but it has to many folk serious drawbacks. Give us the glamour of an English summer, in the time of Roses and Strawberries, when the season is on its best behaviour as regards the weather; when the scent of hay-making comes to us over the pleasant meadows, and we smile at the folly of those who extol the springtime and forget the glories of an English summer.—W.

Bedding Violas at Marks Tey.

It was a happy inspiration on the part of Mr. W. Cuthbertson, of Messrs. Dobbie and Co., to organise a trial of bedding Violas at Marks Tey, Essex, especially so that the plants were put out in their rows last October and left to take care of themselves in the open field all winter. If I remember correctly, the last trials were held at the Royal Botanic Gardens in 1896, but on that occasion the plants were put out in Spring. So the present trials are carried out under even better conditions.

On Saturday last a number of us met at Marks Tey to inspect the trials by the kind invitation of Mr. W. Cuthbertson, and were rewarded with quite a Viola treat. The plants were arranged according to colour as far as possible, and the seventy

odd varieties presented a splendid appearance. In a few cases the raisers had sent varieties that could under no circumstances be classed as bedding varieties, even though they were very fine for exhibition. The soil is a fine, heavy, Essex loam, that holds the moisture in spite of a drought; on the other hand it is very wet during the winter months, yet, in spite of this fact, very few plants indeed were missing, demonstrating in no uncertain manner that the *Viola* will stand a severe winter both of frost and wet without doing it any material harm. This fact struck me particularly, for the majority of people are under the impression that they should be protected from the excessive moisture during the winter.

To arrive at some definite conclusion we elected Mr. C. H. Curtis chairman, and then commenced the business of inspection, which was a far more difficult matter than appears on paper. There were nineteen white varieties: *Snowflake*, a pure rayless sort, headed the list as the best bedder, either rayed or rayless; while *Alexandra* was the best rayed in the section. Other good whites were the old Countess of Hopetoun, Duchess of York, a splendid dwarf habit; *Purity*, Mrs. H. Pearce, and Mrs. A. D. Parker; while the medal variety at Glasgow, E. C. Barlow, was left out in the cold. The flowers were quite a creamy white; no doubt in the North this is quite white.

In the cream section, *Cream King* was adjudged the best, while *Devonshire Cream* was a good second. The primrose varieties did very well, *Primrose Dame* being the best, while *Sulphurea* followed, with a good dwarf habit. *Ardwell Gem* was also good in this class. *Maggie Climax* carried grand flowers, but it is decidedly an exhibition sort.

The yellow varieties were very numerous, and the effect produced by the different kinds most striking. *Redbraes Yellow* led off with a grand colour and good habit, certainly the best bedding yellow I have seen. The old *Bullion*, in spite of its heavy rays, made a fine show, and it was the earliest variety to start flowering. *King Cup*, the popular market sort, was in full flower, but had grown rather tall. *Royal Sovereign* fully maintained its reputation. The plants had made fine clumps. *Walter Welsh* was also in good form, and its early flowering propensities should make it a popular bedder. *Wm. Lockwood*, in spite of its glorious golden flowers, had to be relegated to the exhibition class.

The section for lavender shades caused a good deal of discussion, for *Florizel* was in grand form at the time, while *Kitty Bell* was a little too tall. The former, however, is known to be late in blooming, so the two varieties were given an equal vote, but those of your readers who know the two forms will have little doubt as to the better variety. In this class *Belfast Gem* was in good form; it should make a fine market variety. The light blue shades were well represented, but the popular *Maggie Mott* was easily first, the bed being simply a packed mass of light blue or heliotrope. *Mauve Queen* was remarkably distinct in growth, and evidently late in flowering, but the clumps of growth were very vigorous, with an erect habit. *Blue Duchess* is a distinct dwarf variety, and one that will become popular when better known. Dark blue shades included a wide range of colours, but the popular *Councillor Waters* was well ahead; its habit has much to commend it. *Ophelia*, too, was clear and decided in colour, with a good bedding habit. *Admiral of the Blues*, though rather tall, is a very fine variety with good large flowers. *Royal Scot* is one of the best dwarf varieties, and ran *Councillor Waters* very close for top votes. The old *True Blue* also scored well, but personally I think there was a little sentiment in the vote. *Archie Grant* and *Jubilee*, too, were well in the running, showing there is no lack of good blue forms.

The fancy and unclassified class included a large number. The variety *Glencoe*, a rich crimson bronze, was very striking, though not so good either in colour or habit as an unnamed bedding *Pansy* in Mr. Cuthbertson's private garden, which is quite the best and brightest colour I have seen, while it has a good habit. Dr. Macfarlane was most distinct, while Mrs. Chichester, though it had lost its colouring, was a mass of flower. This variety has lost colour sadly during the past month, but all the same it is a very fine variety. The old *Wm. Neil*, too, was quite distinct, while *Crimson Bedder* belies its name, and is best described as a rosy-purple, and a very distinct bedder.

The varieties I have enumerated were the pick of the beds at the time, but I have no doubt had the awards been made earlier, or even later, some of the varieties would be differently placed. It is Mr. Cuthbertson's intention to allow the trial beds to remain as they are for another season. This should prove most interesting, for we know that several sorts flower earlier when they are two years old, while others degenerate.

I must not allude now to the many interesting subjects one saw, except, perhaps, to note that Sweet Pea lovers will find a real feast at Mark's Tey, with plenty of healthy exercise in the viewing of them. In conclusion, one cannot but record their keen appreciation of the kindness and hospitality of Mr. and Mrs. W. Cuthbertson, who did all in their power to make the recollection of the visit a most happy one.—J. B. RIDING.

NOTES & NOTICES

Return of Sir Thomas Elliott.

Sir Thomas Elliott, secretary to the Board of Agriculture and Fisheries, has returned to London from Rome, where he has been attending the preliminary meetings of the Permanent Committee of the International Agricultural Institute.

Franco-British Exhibition.

We are asked to announce that the horticultural show at the Franco-British Exhibition of June 24, 25, and 26, will be held in "The Palace of Music," a most suitable building, where exhibits will be shown to every advantage in most attractive surroundings.

United Horticultural Benefit and Provident Society.

The monthly meeting of this society was held on June 15 at the Horticultural Hall, Vincent Square, S.W. Mr. Charles H. Curtis in the chair. Four new members were elected. The amount of sick pay was £35 8s. since the last meeting. A member over seventy years of age was put on the Benevolent Fund subject to rule 19, clause 3. The committee hopes that members will do all they can to induce young gardeners to join the society and so make provision for themselves in their old age.

The Sanders Library.

The Horticultural Society of Chicago and the Florists' Club of that city, both of which were offered the valuable horticultural section of the library of the late Edgar Sanders (who was born at Crawley, England), missed a golden opportunity in not accepting what is believed to be the best private library of this character now in existence on the American continent. When Mrs. Victor, daughter of Mr. Sanders, found that neither of these organisations would accept the books they were presented to the John Crerar library at Chicago, where we understand they will be housed hereafter.

British Gardeners' Association.

At the last meeting of this association Mr. E. F. Hawes, superintendent of the Royal Botanic Society's Gardens, Regents Park, was elected chairman of the executive council for the ensuing year, and Mr. Chas. Foster vice-chairman for the same period. Nineteen new members were elected, bringing the total up to 1308. Messrs. Hawes, Foster, Winter, Castle, Raffill, and Weathers were appointed on the publication committee. The examination question was discussed, and it was decided that an outline of its scope should be given in next issue of "Journal."—J. W.

Death of Mr. Wm. Scott.

The American horticultural papers report the death of Mr. William Scott, the universally esteemed florist of Buffalo, New York State. He died on May 19. Mr. Scott was born July 31, 1844, at Leigh Park, Hampshire, England, the country home of Sir George Thomas Staunton, one of the finest gardens in Europe, where his father, a Scotsman, was head gardener twenty-seven years. He attended a private school in the neighbouring town of Havant until he was thirteen years of age. His first gardening work was done under his father. When Mr. Scott was seventeen years of age the family moved to Chichester, where his father rented the Northgate Nurseries. Here William worked until the Spring of 1868, excepting for two years, during which time he was employed in the seed store of W. H. Rogers, of Southampton, famous as a most estimable man and as a good grower of *Rhododendrons*. Possessed of a spirit of adventure, Mr. Scott, with his brother Alexander, now of Baltimore, and his friend, E. I. Mepsted, now of Ottawa, Ont., emigrated in 1868 to Canada, all securing work in the nursery of George Leslie. Since then he had climbed to the highest point of honour in American floricultural circles. His writings on horticultural subjects he elaborated and compiled in book form under the title of "The Florists' Manual," a standard work of its kind to-day. A suggestion is on foot to erect a memorial to his name.

Royal Horticultural Society of Ireland.

This society held its meeting last Thursday, June 11. At it Mr. Edward Knowlton, F.R.H.S., was appointed secretary. Readers of the *Journal*, to whom Mr. Knowlton's name has long been familiar, will be pleased to hear that the voluntary services he has rendered to the Society and to horticulture since his retirement from active work (and especially at the Irish exhibitions) have received official acknowledgment.

Inundated with Wasps.

Since the announcement that the Haywards Heath Horticultural Society was prepared to pay a penny for every queen wasp brought to the summer show, the secretary of the society (says the "Birmingham Post") has been inundated with wasps from all parts of England. Some of the senders have requested that the money they consider due to them should be forwarded by return of post! The society now notifies that only persons living within the radius of the show will be paid for wasps.

The Gardeners' Royal Benevolent Institution.

We are asked to again remind our readers of the sixty-ninth anniversary festival dinner in aid of the funds of the Gardeners' Royal Benevolent Institution, which will take place on Wednesday, the 21st inst., at the Hotel Metropole, under the presidency of the Lord Aldenham, who will be supported by an influential and distinguished company on the occasion. Donations to be placed on the chairman's list are earnestly solicited, and may be sent direct to Lord Aldenham, to Harry J. Veitch, Esq., the treasurer, Chelsea, S.W., or to George J. Ingram, the secretary, at the offices, 175, Victoria Street, Westminster.

Orgy of Asparagus.

A curious old-fashioned dining club that meets only once a year has just held its annual dinner, reports the "Daily Express." It is called the Grass Club, and its object is the cult of Asparagus. The members are mostly prosperous, middle-aged City men who for once in a way abjure kickshaws and revert to plain English food. The dinner is invariably the same. It begins with turtle soup, after which come mutton cutlets, and in front of every member is placed a dish containing ten pounds weight of Asparagus. This means about 500 stalks, and the idea is that at any rate once a year no man present shall be able to say that he cannot get enough Asparagus. He is not bound to eat it all, but it is surprising how much has been disposed of before the company breaks up. The Asparagus is always English grown, and the very best procurable. The membership of the club is strictly limited.

Arsenic in Horticulture and Agriculture.

At a meeting of the Edinburgh Botanical Society, Mr. J. Rutherford Hill, Ph.C., secretary of the Pharmaceutical Society, read a short statement on the use of arsenic in horticulture. He had recently been asked, he said, to explain the death of some domestic fowls on an estate in the south of Scotland. Inquiry showed that eight months ago the pathways frequented by the fowls had been treated with arsenical weed-killer containing white arsenic and caustic soda in equal proportions. The rains had washed away all the soda, but chemical analysis showed that the arsenic had been retained in dangerous quantity in the soil, and this accounted for the death of the fowls. Several similar cases had been reported from other parts of the country. Notwithstanding the presence of arsenic in dangerous quantity in the soil, the ground was now, at the end of eight months, more or less covered with a vigorous growth of weeds, on which the arsenic appeared to have no deleterious effect. The weeds had been effectually killed at the time when the pathways were treated, but this he attributed to the caustic soda, as it had been found that common salt, washing soda, and caustic soda effectually killed weeds. The indication was that arsenic for such purposes was not only ineffectual, but highly dangerous, and he suggested that it would be no loss to horticulture, and a distinct gain to the community, if such use of arsenic were prohibited by legislation similar to the Poisoned Grain and Poisoned Flesh Acts of 1863 and 1864. He mentioned that the use of arsenic in agriculture in France had caused the medical profession to issue a warning as to its dangers. Many animals pasturing under Olive trees treated with arsenical preparations had died from arsenical poisoning.

Another Chrysanthemum Journal.

The French Association of Chrysanthemum Growers has undertaken the publication of a monthly review devoted to the interests of their speciality.

Penny Postage to the United States.

The Postmaster-General has announced that an agreement has been reached with the United States Government providing for a letter postage of one penny an ounce between the United States and Great Britain and Ireland, to become operative October 1, 1908.

Royal Caledonian Horticultural Society—The Neill Prize.

The Neill Prize (which is, under the late Dr. Patrick Neill's will, a reward in the gift of this society which is given every second year to a distinguished Scottish botanist or cultivator) has this year been awarded to John H. Wilson, D.Sc., F.R.S.E., lecturer in agriculture and rural economy, St. Andrew's University.

Kew Gardeners.

In the House of Commons on Thursday, June 11, Sir Edward Strachey, in reply to criticisms, said, with regard to the payment of the men at Kew, they were only there for two years, and were getting training and experience which would enable them to obtain better positions elsewhere in the future. Their pay was better than they would get if they went out as under gardeners, and he denied that they were underpaid, considering the advantages they enjoyed.

The Earlier Strawberries.

The first Hampshire "special" arrived in London from Botley, about midnight on June 11, with fifteen or sixteen thousand handle-baskets of Strawberries, each containing four or five pounds. This marks the commencement of the popular Strawberry season, and by Saturday Strawberries will be selling in the street at a few pence a pound. This is just a week earlier than usual. A salesman in Covent Garden ascribes the quality and quantity of the crops to the sensational snowfall in April. This gave the fruit in its sensitive early stage a protecting blanket against the frosts, which usually do a good deal of damage during the fourth month of the year. The Kentish Strawberries will put in an appearance next week, for they also are well before their time. All other fruits must prepare to hide their diminished heads, for during his all too brief season the Strawberry is absolute monarch of the market. That is why South Australian growers strain every nerve to get all their Apples into this country before June.

Encourage the Children.

Without going into mawkish sentiment, we candidly advise parents to encourage their children to take an interest in gardening. Boys and girls who are taught when quite young to interest themselves in things that grow are always more intelligent and brighter than those who take all these things for granted. There is a constant freshness in gardening—the thing never palls—and while not advising that the boys shall be kept all the time digging the patch while their more fortunate (?) schoolmates are enjoying baseball and other sports, the love of flowers and growing things is innate in us all, and, if encouraged, develops, if not it gradually dies out. It is easy to make it appear to the boy or girl that he or she has been responsible for the growth of plants, fruit or vegetables in the corner that is their special province, and, with a view of encouraging a commercial spirit as well as a gardening spirit, let them, when anything can be spared, sell it if possible to provide them pocket money. Even if nothing in this line can be tolerated let the children take a bunch of flowers to their teachers. This is a never-failing pleasure to them, and the teacher also in most cases. In quite a number of cases, however, the children take to gardening as young ducks do to water, and the habit once formed remains. And the trend of recent times towards beautifying home and park grounds shows that those in power in the land amply recognise the fact that gardening elevates the mind, and that he who takes a delight in having his home surroundings beautiful is a better citizen than he who lets things slide. Help your children all you can to obtain a knowledge of these things, and you will have no cause to regret it.—("Gardening," Chicago).

A Plea for Cacti.

"The cactus family," says Mr. W. Watson in his "Cactus Culture for Amateurs," "is not popular among English horticulturists in these days, scarcely half-a-dozen species out of about a thousand known being considered good enough to be included among favourite garden plants. Probably five hundred kinds have been, or are, in cultivation in the gardens of the few specialists who take an interest in cactuses; but these are practically unknown in English horticulture. It is not, however, very many years ago that there was something like a cactus mania, when rich amateurs vied with each other in procuring and growing large collections of the rarest and newest kinds.

"About the year 1830, cacti began to be specially patronised by several rich plant amateurs, of whom may be mentioned the Duke of Bedford, who formed a fine collection at Woburn Abbey, the Duke of Devonshire, and Mr. Harris, of Kingsbury. Mr. Palmer, of Shakelwell, had become possessed of Mr. Haworth's collection, to which he greatly added by purchases; he, however, found his rival in the Rev. H. Williams, of Hendon, who formed a fine and select collection, and, on account of the eagerness of growers to obtain the new and rare plants, high prices were given for them, ten, twelve, and even twenty and thirty guineas often being given for single plants of the *Echinocactus*. Thus private collectors were induced to forward from their native countries—chiefly from Mexico and Chili—extensive collections of cacti." So wrote Mr. J. Smith, an ex-curator of the Royal Gardens, Kew.

"This reads like what might be written of the position held now in England by the orchid family, and what has been written of Tulips and other plants whose popularity has been great at some time or other. Why have cactuses gone out of favour? It is impossible to give any satisfactory answer to this question. No doubt they belong to that class of objects which is only popular whilst it pleases the eye or tickles the fancy; and the eye and the fancy having tired of it, look to something different.

"The general belief with respect to cactuses is that they are all wanting in beauty, that they are remarkable only in that they are exceedingly curious in form, and as a rule very ugly. It is true that none of them possess any claims to gracefulness of habit or elegance of foliage, such as are usual in popular plants, and, when not in flower, very few of the cactuses would answer to our present ideas of beauty with respect to the plants we cultivate. Nevertheless, the stems of many of them [see our illustration] are peculiarly attractive on account of their strange, even fantastic, forms, their spiny clothing, the absence of leaves, except in very few cases, and their singular manner of growth. To the few who care for cactuses there is a great deal of beauty, even in these characters, although perhaps the eye has to be educated up to it.

"If the stems are more curious than beautiful, the flowers of the majority of the species of cactuses are unsurpassed, as regards size and form, and brilliancy and variety in colour, by any other family of plants, not even excluding orchids. In size some of the flowers equal those of the queen of Water Lilies (*Victoria regia*), whilst the colours vary from the purest white to brilliant crimson and deep yellow. Some of them are also deliciously fragrant. Those kinds which expand their huge blossoms only at night are particularly interesting, and in the early days of cactus culture the flowering of one of these was a great event in English gardens.

"Of the many collections of cactuses formed many years ago in England, that at Kew is the only one that still exists. This collection has always been rich in the number of species it contained; at the present time (1900 A.D.) the number of kinds cultivated there is about 500. Mr. Peacock, of Hammersmith, also had a large collection of cactuses, many of which he at various times exhibited in public places, such as the Crystal Palace, and the large conservatory attached to the Royal Horticultural Society's Gardens at South Kensington. Other smaller collections are cultivated in the Botanic Gardens at Oxford, Cambridge, Glasnevin, and Edinburgh.

"A great point in favour of the plants of the cactus family for gardens of small size, and even for window gardening—a modest phase of plant culture which has made much progress in recent years—is the simpleness of their requirements under cultivation. No plants give so much pleasure in return for so small an amount of attention as do these. Their peculiarly tough-skinned succulent stems enable them to go for an extraordinary length of time without water; indeed, it may be said that the treatment most suitable for many of them during the greater portion of the year is such as would be fatal to most other plants. Cactuses are children of the dry barren plains and mountain sides, living where scarcely any other form of vegeta-



A Group of Cacti.

tion could find nourishment, and thriving with the scorching heat of the sun over their heads, and their roots buried in the dry, hungry soil, or rocks which afford them anchorage and food.

"In beauty and variety of flowers, in the remarkable forms of their stems, in the simple nature of their requirements, and in the other points of special interest which characterise this family, and which supply the cultivator and student with an unfailing source of pleasure and instruction, the cactus family is peculiarly rich."—(From the introduction to "Cactus Culture for Amateurs," by W. Watson. Upcott Gill, London.)

[The photograph reproduced above shows a glimpse of part of the Mexican cacti at Kew, containing *Cereus giganteus*, *Agave americana*, *Cereus triangularis*, and other dry land plants. Part of a large conservatory might be excellently used for the cultivation of large cacti, making their surroundings as natural as possible by the use of sandstone boulders and stony debris.]

Diseases of Plants.

Sweet Peas Damping Off.

During last July, when Sweet Peas were about one-third to one-half grown, occasional vines showed evidence of trouble by turning yellowish, wilting, and finally drying up entirely, says the report of the Connecticut Agricultural Experiment Station. An examination of such plants showed that they were more or less separated from their roots near the surface of the ground by a reddish-brown rot. Microscopic examination of the injured tissues revealed the presence of fungus, *Pythium* or *Rhizoctonia*, as the cause of the injury. Although the trouble was quite common, usually enough plants escaped to make a fair stand. As manure encourages the growth of such fungi, it should be used with care, especially at the surface of the ground. The cold, backward Spring was apparently largely responsible for the unusual amount of damping off this year.

Stem Rot in Herbaceous Plants.

A serious soil fungus was found last fall in a New Haven nursery doing considerable injury to a variety of herbaceous plants, especially to *Valeriana officinalis* and *Pentstemon barbatus*. The mycelium attacks the parts of the plant at or near the surface of the ground, frequently rotting off the stems. In the fall it forms subspherical reddish sclerotia both in the tissues and in the soil near by. Pure cultures were obtained, says the report of the Connecticut Agricultural Experiment Station, and while the fungus grows luxuriantly, it has never produced a true sport stage. The sclerotia form as swellings at the tips of clustered threads, and are at first whitish, but soon turn reddish-brown on the outside. Their size depends somewhat on the character of the medium used in the cultures. In artificial cultures made from the sclerotia these give rise to similar sclerotia, but what they will produce in the soil has not yet been determined. According to Professor Thaxter, they are probably the sclerotia of some hymenomycetous fungus.

Garden Nomenclature.

Gardening has many aspects, all of them interesting. Usually, however, it is regarded from two points of view only, viz., as a means of profit, or as a recreation. The garden as a study has been somewhat neglected. And yet, as it is one of the most delightful places for study, so also it may be one of the most profitable and fruitful in results. Gardening, for example, offers unique opportunities for the study of natural history. Every gardener should be a naturalist, and every naturalist should have a garden as a part of his laboratory for practical work. A garden, again, offers the best materials for a study of the problem of variation in plants and the modifications which can be produced by careful selection. When the French writer Alphonse Karr bid farewell to his friend who was about to travel, he said, "You are going to make a tour round the world; I am going to make a journey round my garden." The result of this journey was a fascinating book which well illustrates the use of the garden as a study.

Again, we may make our garden an interesting study in geography. Our bed of Dahlias, for example, carries us in



The New Sweet Pea Elsie Herbert.

imagination to the sandy plains of Mexico, where Humboldt first discovered them; Pelargoniums and Heaths carry our thoughts to the Cape, where they form so dominant a feature in the vegetation; Jasmine and Camellia suggest the Land of the Pigtail and the Islands of the Rising Sun. But the special aspect of garden study to which I wish to direct attention is that of plant names. It is a wide subject which seems to grow as you work at it. I have also found it a very interesting one, and I hope to be able to communicate a little, at any rate, of that interest to you. The names used by the gardener seem sometimes to have been chosen in a spirit of perverseness. The so-called Syringa, the sweet-scented Mock-orange blossom, is no relation to the real Syringa, being the Philadelphia of botanists. The true Syringa is the Lilac belonging to a very different order, that of the Olives. The species commonly grown are Syringa vulgaris and Syringa persica. And neither of the Laurels usually grown in gardens can claim to be the real Laurel. They are, in fact, both species of Cherry, and belong to the order Rosaceæ. The one, the Cherry Laurel, is Cerasus laurocerasus; and the other, the Portugal Laurel, is Cerasus lusitanica. The true Laurel, Laurus nobilis, is the Bay tree, the type of an order—the Laurel order—which contains also the Camphor tree and the Cinnamon tree.

The familiar and much grown Nasturtium, or Indian Cress, a member of the Geranium family, has borrowed the name of

the Watercress, which is the true Nasturtium, and of the order Cruciferae. The "Crocus purple hour" of spring is repeated in autumn, when the leafless blossoms of the autumn Crocus burst through the soil. But the autumn Crocus is not a Crocus at all, but a Colchium, from certain species of which the famous gout medicine is prepared. It has been said—but I will not vouch for the truth of it—that the mole is familiar with this gout remedy, and that when a too assiduous attendance at its subterranean Diet of Worms brings on painful symptoms it runs a tunnel to the nearest bed of Colchium.

Perhaps the most curiously named of garden plants is the Jerusalem Artichoke, which is not an Artichoke, nor did it come from Jerusalem. For this familiar vegetable is botanically Helianthus tuberosus, the tuberous-rooted Sunflower. The real Artichoke, the Globe Artichoke, is a sort of Thistle, the plant of which Alfred de Musset wrote in his "Fantasia," "Thistles leave the ass's jaws to be flooded with sauce in the Bishop's silver dish . . . the Thistle may become an Artichoke." When the Jerusalem Artichoke flowers, as it has occasionally done in this country, it proves its title to be called a Sunflower. It is said to come from North America, where it was cultivated by the Indians before the settlement of the country by Europeans. The French settlers called the tuber *pommes de Canada*. In Italy the plant is known as Girasole Articocco, that is, Sunflower Artichoke, and the Jerusalem of the English name is said to be a corruption of Girasole. A writer in the "Quarterly Review," however, attributes this solution to a clever guesser, and declares that the Italians did not call it Girasole. The word "Jerusalem," he points out, presents no difficulty, for many plants have been so called which did not come from Jerusalem. The name was given as a mark of honour, or as an indication of the exotic character of the plant. Nor is the Japanese Artichoke an Artichoke from the botanical point of view, though it is rightly named Japanese. It is a species of Woundwort with tuberous roots, *Stachys tuberosus*, and is called Artichoke from the similarity in flavour.

The Plane tree, or Sycamore, is one of the most curiously named of plants. For the true Plane tree, or Platanus, belongs to the great Catkin-bearing family, while the Sycamore belongs to the Maple group. Botanists note this by calling it *Acer pseudo-platanus*. The only excuse for calling it the Plane is the somewhat similar broad leaves. Nor has it any better right to the name Sycamore, which means Mulberry Fig, and is the proper name of the *Ficus Sycamorus*, the Sycamore tree of Scripture.

Botanists, again, have had to reproach the so-called Acacia of our gardens with the same word "pseudo," and name it *Robinia pseudo-acacia*. Its flowers, however, being irregular and papilionaceous, resembling those of the Laburnum, are very different from those of the true Acacia, which are regular, and resembling those of the Mimosa or Sensitive-plant. *Robinia* is also sometimes grown under the name of the Locust tree, to which it has no more right than to that of Acacia. The real Locust tree, or St. John's Bread, is the Carob tree, *Ceratonia Siliqua*.

The Winter Aconite of the gardener, the earliest flower of the year, is not the Aconite. Monkshood, with its tall spikes of blue flowers, is the real Aconite, and source of the well-known poison. Its more familiar name Monkshood, or Friar's Cap, may serve to remind us that in olden times the monks were the physicians and gardeners of their age. In their gardens they grew both medicinal and pot herbs, and relics of their gardening still linger. Thus almost the only place in Northumberland where the Deadly Nightshade is found is on the cliffs below the old priory of Tynemouth—probably an "escape" from the monks' garden. Other "escapes" growing on the safe cliffs are wild Cabbage, Alexanders—formerly used as a pot herb—and blue Salvia, or Clary, the seeds of which were used for eye complaints. And one of the very few places where I have seen the Deadly Nightshade growing wild was among the ruins of Furness Abbey. The so-called major Convolvulus, again, is an Ipomœa. The scarlet and other coloured "Geraniums" of the gardener have no right to the name which properly belongs to the Wild Crane's Bills of our woods and meadows. Although belonging to the same order the gardener's "Geraniums" were separated by L'Héritier, in 1787, under the title of Pelargoniums. They are distinguished chiefly by two characters. In the true Geraniums the flower is regular, while in the Pelargoniums it is irregular, the two upper petals being larger or smaller and differently marked from the other three. In the Pelargonium, again, the back sepal is furnished with a hollow spur which is adnate with the stem, while this is wanting in the Geraniums. If the flower-stalk be cut through just behind the flower the hollow will be seen in the Pelargonium, while the stalk of the Geranium will be found to be solid. The foliage and growth is different, and they belong to different hemispheres.—(A paper read by Mr. G. W. Bulman, M.A., B.Sc., before the Royal Horticultural Society, on March 6, 1906.)

(To be continued.)

Sweet Peas.

Accounts from many quarters show that the Sweet Pea fever is again rampant. The plants have been shooting ahead, and the flowering is now pretty general all over the South and Midlands of England. We figure a vase of Mr. C. W. Breadmore's

Elsie Herbert.

which was one of many in his Temple Show group. This variety, which is white and very slightly and prettily flushed with rose, is a waved variety, a strong grower, and evidently a good Pea. It received an Award of Merit on July 16 at the R.H.S. hall last year.

Waved Varieties.

"The origin of the waved Sweet Pea has been the cause of much discussion, and not a little bitterness, in this country, but it has become apparent, to myself at all events, that we should have had the type, even had not Countess Spencer and Gladys Unwin arisen. The latter need hardly be taken into consideration, for while it and its progeny are very beautiful, they are not equal to the true Countess Spencer race. As I have before mentioned, both Countess Spencer and Gladys Unwin were at first stated to be breaks from Prima Donna, but after a couple of years one or two knights of the pen endeavoured to disprove this. The parentage of the flower was actually given, but just how many took it for granted will never be known. One thing is certain, whatever variety was used for crossing, there was none that showed any tendency toward waviness, unless I except the Hon. Mrs. E. Kenyon, which has always shown a very slight ruffle. This being so, it is clear that the true waved type came unexpectedly, and, farther, it came simply because the Sweet Pea had reached a stage, brought about by long years of breeding, which induced it to break away from the old type in just the same way as have the frilled Begonias and Cyclamens. That this is so is proved by the report in the "Sweet Pea Annual," of a waved race of Sweet Peas being evolved by crossing Miss Willmott with Gorgeous, and again crossing the resultant seedlings with Scarlet Gem. This is a totally different parentage from that which brought about Countess Spencer.

"Despite these reputed crosses I do not hesitate to say that the waved Sweet Pea would have come even had no cross been made. I firmly believe the break is due entirely to spontaneous evolution, spontaneous because it was not confined to any one variety to create the new type. This is proved by the appearance of Saint George, which is a selection from Gorgeous. Just how long Saint George will take to fix the waviness remains to be seen, but up to now it has not produced waved flowers entirely, although trueness of colour has been proved.

"It is interesting to observe, too, that the waved types are direct descendants from Eckford's varieties in every case. Even Gorgeous came as a selection from the old Meteor. The varieties that are traceable to this old variety are surprising. Gorgeous has for several seasons been running amuck, for Evelyn Byatt, Beatrice Whaley, Mildred Ward, Millie Maslin, and Saint George are without doubt selections from it. Gorgeous, like Meteor, has finished its innings. What will follow Saint George?

"I have been interested in the various notes dealing with Sweet Peas as shown at various meetings, and I found myself longing to get over to New Orleans, La., where the plants were blooming in February.

Winter Flowerers.

"I have been watching the Zvolanek varieties over here, and growers to whom I sent samples of seed have also reported. Briefly, I am forced to conclude that we can never hope to grow these varieties as they are done in America. Poor light and lack of sun are the probable causes. Owing to this no amount of heat could be turned on; and at a Guernsey establishment the plants were ruined early in the season through keeping up a temperature of 60deg; 45deg to 50deg is as much as we dare give them during the dull months, and consequently growth was slow. The first bloom was cut on March 5, the colour being lavender, and curiously enough every grower reports the lavender as being the first to flower. As to their value as market flowers they have none, so far as March blooms go. The stems are of fair length and wiry, but the flowers are undersized and very thin. The colour is very fugitive too, for the pinks quickly fade to cream, and the lilac becomes a pale lavender. Another failing is that, although the flowers are well expanded at the outset, they rapidly take on a terribly hooded form as soon as touched by sunshine. The growth is by no means as strong as that of the ordinary sorts, being thin and wiry, and the foliage is extremely narrow. Whether the blooms will improve later remains to be seen."—T. A. WESTON (in "The Florists' Exchange").



Rose, Irish Elegance.

Our pretty figure of this Irish raised Rose was secured at the Temple from a vase upon Messrs. Frank Cant and Co.'s stand. As is generally well known, this variety was raised by Messrs. Alex. Dickson and Sons, Ltd., Newtownards, who received the N.R.S. gold medal for it, in 1905. It is a vigorous growing hybrid tea. The flowers are single; in the bud state the colour is bronzy orange scarlet; the open flowers contain varied apricot hues. The plant is of branching habit, and very floriferous from early June until late autumn.

Rose Rust.

The report of the Connecticut Agricultural Experiment Station, after mentioning the Rose rust, *Phragmidium*



Rose, Irish Elegance.

speciosum, says: "Sturgis, in his report for 1893, p. 86, mentioned injury to cultivated Roses by another species of rust, *P. subcorticium*, but this is the first note in the station's reports of the above species. It was found on cultivated Roses in Westville, causing considerable injury to the stems, to which it was limited. As usual, only the III. stage appeared on the infected stems, forming small, hard, black pustules, usually occurring in clusters."

Dog Roses.

The Dog Rose is the sweetest of English wild flowers, if we, perhaps, except the Eglantine. With the approach of July, or a week or two earlier, according to the season, its fragrance perfumes every hedgerow. One would fain gather and preserve it as the gem of the rustic bouquet, but that is unfortunately impossible. For the beauty and sweetness of its petals are not more obvious than their extreme fragility. Yet the Dog Rose will always be a favourite with those who love the English flora. And it is beloved not because it has been the parent of the magnificent and costly varieties of the Rose which adorn our greenhouse and gardens. The notion that a *Maréchal Niel*, for example, is only a Dog Rose very much improved will hardly bear serious examination. Still, the florist is indebted to Nature's rosary. The long straight stems of the wild Rose are the object of his diligent search. His emissaries scour the fields in autumn to look for the Briar stocks which, transplanted into

his nursery, may be depended upon to bear the Rose which is the perfection of culture. For, like some of our choicest fruits, the fragrant flower cannot trust to its own vigour, but is dependent upon the strength of the wild variety into which it has been grafted. The process of grafting, in fact, has enabled the gardener to effect some of the greatest triumphs of his art.—("Globe.")

Dates of Exhibitions of the National Rose Society and of Societies affiliated with it.

Reigate, Saturday, June 27.
Windsor, Saturday, June 27.
Isle of Wight (Ryde), Monday, June 29.
Canterbury, Tuesday, June 30.
Southampton, Tuesday and Wednesday, June 30 and July 1.
Farnham, Wednesday, July 1.
Farnham, Wednesday, July 1.
Reading, Wednesday, July 1.
Sutton, Wednesday, July 1.
Royal Botanic Gardens (N.R.S.), Friday, July 3.
Southend-on-Sea, Tuesday and Wednesday, July 7 and 8.
Bath, Tuesday and Wednesday, July 7 and 8.
Colchester, Wednesday, July 8.
Croydon, Wednesday, July 8.



Anemone alpina.

Epsom, Wednesday, July 8.
Tunbridge Wells, Wednesday, July 8.
Eltham, Thursday, July 9.
Harrow, Thursday, July 9.
Stour Valley (Westbere), Thursday, July 9.
Maidstone, Friday, July 10.
Edgware, Saturday, July 11.
Purley, Saturday, July 11.
Baltic (St. Mary Axe, London, E.C.), Monday, July 13.
Gloucester, Tuesday, July 14.
Saltaire, Tuesday, July 14.
Trowbridge, Tuesday, July 14.
Chippenham, Wednesday, July 15.
Formby, Wednesday, July 15.
Luton, Wednesday, July 15.
Thornton Heath, Wednesday, July 15.
Woodbridge, Wednesday, July 15.
Chipping Norton, Thursday, July 16.
Helensburgh, Thursday, July 16.
Potter's Bar, Thursday, July 16.
Manchester (N.R.S.), Tuesday, July 21.
Dunfermline, Thursday and Friday, July 23 and 24.
Chesterfield, Wednesday, July 29.
Westminster (N.R.S.), Royal Horticultural Hall, Thursday, September 17.

Hardy Plant Notes.

Anemone alpina.

Herein we have one of the dwarf spring-flowering Anemones, with large white flowers and deeply lobed, dissected foliage. Mr. Amos Perry, of Enfield, had some nice plants of it in his stand at a recent exhibition. It is native of the mountains of Central Europe, growing from half a foot to two feet high. It has several varieties, of which sulphurea is a good one. It likes loam, leaf mould, and some lime.

Eryngiums.

For light sandy soils and sunny positions the "Eryngos" or Sea Hollies are well adapted, and make noble and effective groups when planted in the herbaceous or shrubby borders. The cone-shaped flower heads and spiny bracts are produced on tall stems from 2ft to 3ft high, regularly branched, with small spiny leaves clasping each node. Though partial to light soils, any ordinary well drained soil exposed to the sun will suit them.

As cut specimens for large vases they are most welcome, their blue and ivory flower heads and bracts are very decorative for home adornment. The following species and varieties are the best, and should be given prominent positions in the herbaceous border. *E. giganteum*, the Ivory Thistle, bearing ivory-white, cone-shaped heads and bracts and foliage. *E. hybridum*, small, round, ball-like flowers of a metallic blue, freely produced, and of free branching habit. *E. Oliverianum* superbum, bracts and cone of a beautiful amethyst blue. *E. Zabelli*, of recent introduction, with glistening blue stems and bracts, very beautiful. *E. alpinum*, the earliest to bloom, and of less spiny character; flower heads and foliage of a metallic blue. *E. planum*, small, globular, Thistle-like light blue flower heads produced in abundance, useful for cutting. *E. Bourgati*, a compact growing species, with steely blue foliage and bracts, very pretty. *E. maritimum*, the Sea Holly, dwarf trailing habit, very handsome in rockeries, where it can fall naturally, and gives a very pleasing effect. The flower heads and foliage are silvery grey. *E. tripartitum* (syn. *corniculatum*) is a distinct species, having finely cut spiny foliage, and tripartite, bushy habit, with greyish blue inflorescence.—W. L.

The Marvel of Peru (Mirabilis jalapa).

Among many flowers which were at one time in vogue, but are now all but neglected, is the Marvel of Peru, or *Mirabilis jalapa*, a plant which is a perennial, but which is most satisfactory when grown as an annual or biennial. Its neglect is not difficult to understand, as it is just on the borderland between hardy and half-hardy flowers, and can hardly be left out in the open during our average winters, but must be lifted and stored during winter. Nor is this all; for after the second year or so the blackish tubers which form the reserve of life for the winter become too large for convenience. Thus many gave up its cultivation, while others continued to grow it by cultivating this old flower as an annual, sowing it in April under glass and treating it just as they would treat a half-hardy annual. Sown in March or April the plants will bloom the same year. It may, indeed, be sown in early May and flowered the same year, but this is not possible in coldish districts, and the other method is the better of the two. This Marvel of Peru is a handsome plant, making a bush 3ft or 4ft high, and as many feet in diameter, and almost covered with wonderfully showy flowers, although only about an inch across. The colouring is pretty, some being self-coloured, some striped, and some spotted, and the ground colours are remarkably varied, as we find among them purples, crimsons, roses, lilacs, yellows, and whites. In a warm and sunny garden they are wonderfully fine when the sun is shining upon them, and even a few plants are an acquisition to the autumn garden. Where old tubers are retained they ought to be started in pots and planted out when some growth is made in the end of May or the beginning of June. Some day, perhaps, the old Marvel of Peru will come to its own again, but meanwhile it is under a cloud indeed.

The Spotted Heron's Bill.

There are some exquisite little plants among the *Erodiums*, or Herons' Bills, and that named *E. guttatum*, the Spotted Heron's Bill, is as pretty as any of the class to which it belongs. It owns a share of the charming, finely divided foliage which the genus so largely possesses, and the flowers are striking in their departure from the majority of its sisters in the white ground colouring, the whiteness being accentuated by the deep purple spot which is so conspicuous at the base of each petal. It is far from being a common species, and there are many who do not appear to know of the existence of this plant, but who would admire it did they once see it. Like the greater number of its congeners in cultivation, *E. guttatum* seems quite hardy, and it is not too particular regarding the soil in which it is planted, although it likes one which is rather light than inclined to heaviness. Its height is only about 6in, so that it is more suitable for the rock garden or for a rock edging than for placing in the large herbaceous border.—S. ARNOTT.



Caladiums.

To bring out the fine colouring of the fancy-leaved Caladiums to the full, a light house and almost full exposure to the sun is needed. The development of the leaves is checked by inferior root action or lack of moisture in the atmosphere, and allowing the flowers to develop and form seed is also against them. The ideal cultural atmosphere is one where the strongest rays of the sun are broken up by an open lath blind, and where plenty of moisture is held in solution, thus doing away with the necessity of spraying or syringing. The sun ensures a brisk buoyant temperature, and sufficient fire heat at night to prevent the temperature dropping below 60deg should be allowed. A lot of moisture is needed by the roots to keep the large showy leaves in good condition, and feeding is also necessary, for, unlike many foliage plants, the best varieties of Caladiums must have considerable manurial support to bring out their exquisite colouring.

Planting Kalmias.

May is the season that sees many plantations of Kalmias formed. When beds are made for them, being dug to a depth of several feet and then filled in with rough material at the bottom and turfy loam at the top, there is moisture at the roots all the time, and plants usually thrive in them, even when they get but little shade. But the right place for these plants is where the soil is deep and moist and light, and where the sun does not strike them in the heat of the day, such a place, in fact, as they are found in in a wild state. Imported plants are given the best of care, and reach here appearing superior to our own, the foliage being larger and of a brighter green. When these plants are set out here they are often placed in positions not as good as they previously occupied, hence at the end of the season they do not look as well as when they came, and, too, the transplanting has checked them. What to expect of Kalmias is not that they will carry along the vivid green of the foliage they were landed with; this our climate will not allow. But to look for them to well represent the best of those found in their wild state is quite possible, given the proper attention, as suggested.—("Florists' Exchange.")

Apple History.

During the reign of Henry VIII. Apples were brought from Flanders, and distributed by that monarch's fruiterer, Harris, in Kent, thus giving that county a supremacy in Apple culture, especially as regards size and colour. Holland, and the whole of the Low Countries, contributed Apples and other fruits to the enrichment of our gardens and orchards. During the Commonwealth the number of Apples known in England had vastly increased, and the dwarfing system of growing Apples was introduced into Britain by William III. from Holland. Albeit, the Api or Lady Apple claimed to have been first discovered as a wildling in the forest of Api in Brittany, was not known in this country till the close of the seventeenth century, so that the French equally with the English ignore everything of Roman origination in Apples. But the very name *api* is the Celtic word from which the English obtained *apple*, and has a strange signification and reference to the Api brought to Rome by Appius Claudius. At the close of the seventeenth century we had Golden Reinette, Golden Russet, Juneating, Royal Russet, and Summer Pearmain, also varieties distinguished by local names, such as Devonshire Quarrenden, Kentish Pippin, London Pippin, Ribston Pippin in Yorkshire, and Oslin in Scotland. At the same time we had Calville Blanche, and in 1785 Borsdörffer from Germany. In 1768 Newtown Pippin, an American Apple *par excellence*, was cultivated, Duchess of Oldenburg and Emperor Alexander from Russia,

and Red Astrachan from Sweden in 1818. Gravenstein came from Germany, and English grown fruit was first exhibited in 1819.

Ficus elastica and F. pandurata.

Where there are large old stock plants of *Ficus elastica* or *F. pandurata*, good specimens can be quickly produced by ringing and mousing the growing points now. The plants may be taken off of various sizes, from five to eight good leaves being the handiest. Wherever it is decided to take the plant off, ring the bark completely around, taking a ring about half an inch or less. Have some sand and sphagnum moss ready and tie moderately firm all around about 2in above and below the point of ringing and about 2in thick. Keep this constantly moist by syringing daily, or otherwise. If allowed to get dry the plants, even if they root, will likely lose their foliage later, but if the moss is kept always wet from the start practically every one will root, and root quickly. When the young growing points of the roots can be seen through the moss the plants may be cut off and potted into 3in or 4in pots, and kept rather close and moist until well established.

Aubrietia tauricola alba.

A dainty little plant for the rockery or the stone edging is the white Taurian Aubrietia, *A. tauricola alba*, which ever receives full praise from all admirers of the dwarfer rock plants as they see it trailing over the rocks and stones and veiling their ruggedness with a little curtain of verdure and colour. It is a variety of the pretty little purple *A. tauricola*, but is still more beautiful than the type, as it gives a multitude of flowers, which open out white, and gradually pass off to almost lavender. When seen a little away the plant when in bloom looks quite silvery in its tone, from the combination of white and lavender at one and the same time; but even when looked at nearer hand, the harmony of the white and lavender is unbroken, and the plant looks even more beautiful than before. It is dwarfer and a closer grower than the greater number of the Aubrietias, and lies quite close to the stones over which it hangs. This charming little plant is increased by division or by cuttings, both methods of increase being performed after flowering.—Sol.

Perfumes from Plants.

Many perfumes and flavourings that were once obtained from flowers, fruits, or leaves are now made by the chemist in his laboratory, says "The American Botanist," but we have not entirely given up the vegetable world as a cheap and convenient source of stimulants to our senses of taste and smell. Of such products we still import several million dollars worth each year. Some of the most familiar plants used for perfume are Almond, Caraway, Fennel, Jasmine, Citron, Lavender, Lemon, Orange, Rosemary, Rose, Thyme, Violet, Geranium, Acacia, and Tuberose. There are four principal ways of obtaining the perfume, depending upon the kind of plant used. For those with abundant oil, such as the Orange, the fragrant part may be obtained by pressure. Others, like Peppermint, Birch, Sassafras, and Wintergreen require distillation. Maceration consists in immersing the plant parts, usually flowers, in melted grease, while enfleurage, the most delicate of all, is carried on by placing the flowers on sheets of glass which have been covered with a thin layer of grease. The characteristic odour of any of our fragrant species may be brought out by one of these four methods. In general the essential oils are obtained by distillation and the more delicate odours of flowers by maceration or enfleurage. Anyone with an experimental turn of mind can easily make a still and derive considerable pleasure from the distillation of various plant oils. All that is needed is some kind of a boiler and a few feet of pipe for the worm through which the vapour from the boiling plants is led until it condenses. The worm is kept cool by a constant flow of cold water over it. Among our native plants from which perfumes and oils have been extracted may be mentioned Sweet Golden-rod (*Solidago odora*), Canada Ginger (*Asarum canadense*), Magnolia, Birch, Wintergreen, Sassafras, and Bergamot.

The Grand Yorkshire Gala.

The Jubilee of the Grand Yorkshire Gala, Floral and Musical Exhibition is being celebrated this week (Wednesday, Thursday and Friday) at York. A souvenir of the occasion has been prepared, and by the courtesy of Mr. Fred. Arey, the secretary of the gala, we are privileged to reproduce the portrait group of the members of Council of 1907.

The gala was inaugurated in 1858 at the Old George Hotel, in the Pavement, York, and the several subscribers guaranteed £20 each. Floriculture has always been one of the chief objects of encouragement, and a sum of over £132 was disbursed in prizes in 1859. This year, 1908, no less than one thousand guineas are offered in the floricultural section of the gala; and when one considers the enormous amount of other expenses—the entertainment of the Royal Horticultural Society's delegates, and of the judges; also the cost of the first-class military bands, and of all the innumerable side-shows, fireworks, balloons, and other attractions, one cannot but admire the courage and skill of the men who embark on this huge venture, and who year by year maintain this renowned gala.

Next week we shall hope to deal with the features as we saw them; but to-day we must rest content and sincerely wish this Jubilee Gala every success. If rain and wind does not again play havoc, as it did in 1897 (when the show was entirely ruined and the loss was £500), there is no doubt of a triumphant issue. York is a great and grand old city, and the space within its walls should be packed to overflowing during this memorable week.

No fewer than 1,844,817 persons have attended the gala during its forty-nine years; and the highest number on any three days was in 1899, when the total reached 57,383. In the last twenty years, £26,000 has been spent in prizes; £3,200 on music; £1,250 on balloon ascents; £2,150 on fireworks, and over £3,000 on other amusements. The receipts have amounted to £38,700, and £2,682 has been paid over to charitable institutions, including the Gardeners' Royal Orphan Fund. Besides this, a good reserve fund has wisely been built up.

The Herbaceous Calceolaria.

Calceolaria hybrida, as the specific name implies, is a hybrid plant, advanced to its present magnificent state, both as to constitution and the beauty of its flowers, by much cross-fertilisation of the finest types, which result in ever new surprises and delights in form and brilliancy of colour. The finest examples in these respects have invariably been raised from seeds of selected varieties, saved on scientific principles that ensure vigour, variety, and splendour in the progeny. This procedure is followed by specialists so as to obtain and maintain a strain, or strains, notable for free-flowering qualities, compact habit of growth, with flowers rich and varied in colour, beautifully spotted and blotched, and of fine form and substance. The procuring of seed of the best and choicest strain is, therefore, a matter of the greatest importance in order to attain a good result at flowering time.

Calceolarias, especially the herbaceous, thrive under what is termed cool-house treatment. So long as frost is excluded from the plants in winter they are perfectly safe, while to attempt to hasten growth at any time is a failure. The treatment must be intelligent, for the plants are, at least, quick in resenting neglect or careless management, consequently they must be given scrupulous attention in order to attain the highest development. Extreme conditions of temperature are distinctly injurious, and the plants are especially susceptible to an excessively moist and close stagnant atmosphere, while, above all things, hating a parched and dry air.

SOWING THE SEED.—The consensus of experience points to May as early enough, and July as quite late enough, to commence operations, but it does not follow that June is the best month for sowing to produce the quickest, strongest, and most robust plants. Some growers hold that the mean of extremes is best in all things, and therefore adopt June sowing. I, however, prefer to wait until the sun has passed its highest altitude in the zenith, and sow the seed early in July.

The soil should be rich, firm, yet porous, such as good yellow loam (with the turf reduced to mould) one part, leaf soil half a part, and silver sand quarter part, mixed. Press it well into the pot or pan, and make the surface slightly convex and quite smooth. If the compost be in a properly moist condition the seed-pot or seed-pan will not need watering; but if necessary to moisten it, this is best done by partially submerging the pot or pan in water. The seed is as fine as dust, and easily lost or blown away, hence it requires careful handling. Scatter the seed evenly and thinly, and sift over it a mere dusting of fine moist mould. Place a sheet of glass upon each pot or pan, and

set in a shady part of the greenhouse, or better, moist shady part of a vinery, always where free from drip or water in syringing. Every morning turn or wipe the glass. This prevents stagnation and accumulation of moisture likely to cause the seedlings to damp off, while otherwise checking rapid evaporation, and preventing attacks of predatory pests.

Germination proceeds rapidly under the close conditions, and being favourable, all, or most of the plants will be up within ten days, very few appearing afterwards. As soon as the seedlings are through the soil remove the sheet of glass, this being promptly attended to or the plants will either be drawn or rapidly disappear or fade away. When the second leaf appears, commence pricking off the plants into pits or pans duly prepared for their reception, this being a delicate operation owing to the tenderness of the plants and their being difficult to handle. Allow about a couple of inches between each plant, and continue the pricking off at short intervals, not allowing the plants to become drawn, but attending to the pricking off as soon as the second leaf appears, about three operations being needful to get all the seedlings into the pricked off pots or pans. The seedlings will make steady progress provided they are properly attended to in shading from direct sunshine, which, if allowed for a brief period, will prove highly injurious, if not certain and speedy destruction. Dryness must be avoided by frequent, yet judicious, gentle sprinklings of water, rain-water being always preferable. If the surface of the soil becomes close and hard, stir it with a pointed stick without disturbing the plants or their roots, and give the needful watering a few hours afterwards.

In about a month after pricking off, the seedlings will have produced four or five leaves, and will require potting up into thumb (2½ in) pots. The pots must be clean and duly crocked with small pieces of broken pot, and over the drainage place a little clean moss or coarse cocoa-nut fibre refuse, then fill with rich porous soil. Lift each plant individually with as much soil adhering to the roots as possible, pressing the soil moderately about the plants, and allowing due space for watering, or rather its holding when applying water.

In selecting the plants in either pricking off or potting off, it is well to remember that the strongest plants are mostly those producing flowers in which yellow largely predominates, and that the least robust seedlings are those usually, if not invariably, giving the most charming colours and most perfectly formed flowers. It will not do, therefore, to use the most promising plants in respect of robustness, and throw the weakly, yet healthy, ones away. Besides, it must not be inferred that because some plants are weaker than others at the pricking off, or potting up, that they will not ultimately make sturdy and even robust plants later on.

After potting up the plants are best placed on a moist cool bed of ashes in a frame, or failing this in the sheltered part of a greenhouse where moderately moist, yet free from dripping water. The plants, however, must not be far from the glass or they will become drawn and weakly and worthless, and though air must be given on all suitable days, it must not be so as to cause a drying current, otherwise the foliage will be crippled, hence the ventilation should be on the leeward side of the house.

Aphides are almost certain to find out the plants, and left to their own "sweet will" will soon spoil them by sucking out the juices of the leaves and stems, and also clogging the subjacent foliage by their filthy excretions. Tobacco smoke, or vapourisation with the preparations advertised, is the best remedy. It should be given in the evening, taking care to have the foliage dry, and a still atmosphere renders the operation more certain. Water carefully on the following morning, and shade from the sun. This must be repeated as necessary to keep the plants perfectly free from aphids in all their stages.

The plants will need shifting into larger pots as they fill the thumb pots with roots, not allowing them to become root-bound, but it is not advisable to give large shifts, the strongest plants being in 4½ in pots by the latter part of September, and weaker-growing ones in large 60's or 3½ in pots. They must then be housed if grown in a frame, assigning the plants a position where they will receive plenty of side light as well as unobstructed light from above. This means a shelf where they will be not much, if any, more than a foot from the glass, and though in severe weather they may be moved lower down and more towards the centre of the house, they must be replaced as soon as possible to the fullest light obtainable. The more air that can be given, provided it does not drive full upon the plants, the better, the temperature being maintained at 40deg to 45deg at night, and 50deg to 55deg by day from sun heat, air being admitted and maintained full at between those degrees. Indeed, fire heat should be dispensed with if the temperatures named can be maintained without it. The plants only need water to prevent the foliage from becoming limp. They must not, however, suffer for lack of moisture either at the roots or in the atmosphere, or red spider may infest and ruin the plants.

By February, or early in March, the plants will have made

steady progress, and growth is being pushed that needs more encouragement. This is done by shifting into the flowering pots—8in for the weaker, and 10in for the most robust plants. This must not be deferred too long, or until the buds push up, otherwise there will be a large development of leafage at the sacrifice of the bloom. The compost before named, viz., four parts good turfy loam, with the herbage and roots thoroughly reduced, two parts leaf soil, or thoroughly rotted manure, and one part silver sand, adding about a pound of some artificial manure and a pint of good soot to each two bushels of the compost. The turfy loam, preferably that known as hazel or

the nearer the glass the better, always provided they have sufficient head room, and are duly attended to with water.

Feeding should not be attempted until the pots are filled with roots, then it may be advisable to supply manure water at alternating waterings until the blooms show. Sometimes the plants are so promising after the shifting into 8in or 10in pots, or at least some of them, that it is deemed advisable to shift them into 10in or 12in pots respectively, so as to secure a few large specimens. This is excellent practice, but it must be done before affording supplies of liquid manure, and when the pots are filled with roots, not before, give regular supplies

MEMBERS OF THE COUNCIL (1907) OF THE GRAND YORKSHIRE GALA.

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yellow, should be broken up, and the leaf soil freed from rough parts, the whole well mixed a fortnight before use, and turned over at least twice before use. Good drainage must be provided, as any sourness in the soil, either from rawness of compost or from waterlogging of the soil, is fatal to the flowering; indeed, the plant so affected usually collapses just at the time it should be developing the flowers. The potting must be carefully performed, not damaging the somewhat succulent and easily broken leaves, and the compost be rough, the turfy loam not being broken up very finely; it may be firmed into the pots, but no ramming hard had recourse to, or the roots of the plants will not ramify through it freely. Assign the plants a light, airy position in a house with a greenhouse temperature,

of liquid manure until the bloom is well up. Care must be taken not to give a too strong dose or, the roots being injured, the plants will be ruined, though when the drainage is good and the plants thrifty, a rather strong liquid will not injure them. Good foliage is almost as important as the size and quality of the flowers, indeed, there is a corresponding likeness between them.

The plants should be tied out about a fortnight before flowering, and being done so as to display the bloom to best advantage, there are few, if any, plants that are more effective when in full display, during which period they should be given clear soft water only, the bloom being longer continued by affording shade from powerful sun.—G. HERZ.



Deep Tillage.

The gospel I here intend to preach is one of deep cultivation. That is the great bed-rock principle of successful soil tillage. As a practical precept of cultivation, deep tillage has been advocated for years by many of our foremost men of science and successful cultivators, but its practice is lamentably limited. Deep tillage is justified by the fact that the roots of crops are ever ready to plunge into the subsoil if it be made at all possible to get through. The fact that, despite the difficulties, roots will dive deep down into the subsoil is an eloquent plea for a better system of tillage. Usually the subsoil is less fertile than that on the surface, not necessarily because it is devoid of plant food, but because the food it contains has not been made available for the plant. Plant food in a soil is of no use as a cultivable asset unless it is by good tillage made into such a form that it can be freely assimilated by the delicate root-hairs of the plant. In every subsoil of cultivable land is locked up an amount of plant food which in the interests of common sense and economy should be used for plant production. If the question depended on the attendant results there would be every reason for at once adopting deep cultivation. Every successful exhibitor of garden produce will assure you that deep tillage is one of the most important secrets of his success. Oftentimes double the quantity of produce may be got off a given area. Not only that, but several crops may be obtained during the year.

To copiously enrich the soil with suitable manure, to ensure a handsome dividend of healthy produce for every particle of manure and moment of labour, to obtain from the land the utmost quantity and quality with the least expense—that is really intensive culture. Let every link of land be utilised, for there need be no fear of exhausting the soil. That cannot be done when the golden rule of three is observed—deep tillage, plentiful manuring, and continuous cropping. To understand thoroughly the advantages of intensive culture it is necessary to visit an up-to-date market garden. Here the crops will be found succeeding one another in healthy rotation with great rapidity. Often a crop is got on the ground before the other is entirely off. In winter the land is cropped well nigh as fully as in the summer. Before a permanent crop has used all the space allotted to it a catch crop is put in which can be matured and cleared off the ground in a short time. This high system cannot prevail without thorough working of the soil. Loads of manure will not avail if the soil be not opened to the beneficial influence of air and warmth.

There are various reasons which I would point out why deep tillage should appeal to all cultivators:—1, A greater amount of plant food is placed at the grower's disposal; 2, the land is freed from surplus water, and is able to receive and absorb air and warmth; 3, a dry soil is enabled to absorb more moisture; 4, proportionately less manure is needed; 5, better results are obtained from what is used; 6, there is less fear of the land becoming sour; 7, weeds and rubbish can be deeply buried and made to serve the purpose of manure; 8, the crops are better in quality and quantity; 9, insect and fungoid pests are less likely to prove troublesome; 10, the plants get a better start and grow more rapidly; 11, in many cases they may be obtained earlier than by the old method; 12, the vicissitudes of weather do not so disastrously affect the crops; 13, with greater vigour they can withstand more wind; 14, the crop being larger, the waste matter will be proportionately large, and can be used for pigs or dug in as manure.

These seem to me to be the great advantages of deep tillage. That a greater amount of plant food is placed at the disposal of the plant is self-evident, for is not the amount of soil doubled? An acre of land tilled to a depth of eighteen inches is probably equal to two acres with a tilth of but nine inches. Digging is justified and necessitated by the need plants have of air and warmth, besides assisting in the discharge of a superabundance of water.

It has been proved by results that a dry soil deeply dug can retain more moisture than if the lower layer of soil were unmoved. During hot sunny weather there is a constant evaporation of water from the soil. As the moisture is evaporated from the surface other moisture rises from the lower strata to replace it, so that the greater the depth of soil from which moisture can be drawn the less the danger of exhaustion through dryness. It is a demonstrable fact that a well-tilled

soil has less need of manure than one which has been scratched over in a half-hearted manner. The simple explanation is that by the aid of the right conditions of air, warmth, and moisture more plant food is made available. This does not mean that manure may be dispensed with, but points to its more profitable use. Much manure in a badly tilled soil is wasted, because the elements are unable to enter and convert the manure into such a form as can be assimilated by the plant. Then arises a state of sourness. In a land deeply opened and well broken an abundance of manure may be used with small danger of sourness and with every prospect of a rich return.—W. F. R.

Birds in the Garden.

It is worth while to watch the birds in the garden at springtime. I have made several observations of late, particularly noticing the bullfinch. To my mind it is not an enemy. I have never seen the bullfinch take the blossoms or damage them otherwise than by accident. The tomtit is without doubt one of our best friends. I was watching it the other day flitting about the fruit trees taking the few grubs that remained after a careful search over the trees. The larger birds are the worst offenders, as they take the Strawberries. This season is the first that I have seen the water wag-tail up among the branches of the fruit trees; we shall find this bird, too, a very valuable friend. Many species are getting scarce, and our insect pests are more numerous.—C. E. R.

French Gardening.

In your issue for May 21 appears a very interesting comment on the much-talked-of French system of gardening, exposing the fallacy of the enormous profits said to be derived from small areas by manure and glass coverings. The daily Press often give startling statements which are not borne out by facts, at any rate when their remarks have reference to horticulture, and it would seem that the authorised sum of £600 per acre has set many minds into motion with a hope that some such dividends may be received from this intensive system of planting, sowing, and marketing garden produce. It is well to point out to those persons jealous of such ponderous incomes, that the first cost of such intensive schemes is somewhat "tall." The labour, the season, the market, and cultural details all have their share in determining the profit. That by the aid of manure beds and frames a very appreciable gain is made in early maturity needs no emphasising, for object lessons of this kind may be had easily enough in every Spring season. Were this to be lavishly taken up, the glass and timber merchant might become exhilarated by his enhanced prospects, and the millions might congratulate themselves on the possibilities of cheap articles of wholesome character being placed within reach. For the certainty remains, that the more and greater the supply, the lower is the corresponding value, and this in the face of such costly expenditure in "plant," or first aids.

It has often been argued that the millions of pounds that are spent on imported produce may, as regards some articles of diet, be just as well spent in our own country. It would, indeed, be a source of inexhaustible pleasure could such possibilities be assured to the large community of British horticulturists, who, year in and year out, provide for the needs of the market in perishable materials. But we are living in an age of competition which dispels all such hopes from the mind of the practical man. Radishes, Lettuces, Cauliflowers, Turnips, Asparagus, Carrots, and French Beans are some of the crops grown under the intensive scheme that is said to be so remunerative—on paper. Already these come into our markets from other lands in large quantities, and instead of our home competitions shutting these importations out, they only invite lower prices and glutted markets. Low prices are not calculated to remunerate the producers.

With the increased manufacture, and use of motor vehicles, there must be faced the corresponding decrease of horse-keep and manure production, which count so much in the system under notice. Bearing these facts in mind, some prospective British providers must needs turn their attention to the equipment of frames adapted for hot-water heating. It has become common knowledge that Spring crops, such as are here enumerated, grow more readily when they have warmth beneath them husbanded from manure beds. Hot-water is a good substitute, but it does not do so well in the production of these crops. Similarly, small bodies of fermenting manure quickly subside in wintry weather, needing replenished linings to further augment the warmth which is of so much importance. Here is where the profit of the venture is likely to evaporate, because labour and manure make heavy inroad on capital, and especially on such perishable crops. Potatoes are mentioned as one of the staples, but who, having any experience, can imagine a working profit being made out of these under frame culture, when from

warmer climes come shiploads that are sold cheaply by every better-class greengrocer in town or city? It is true also, as "Grower" pointed out, that only a limited demand is found for these Spring forced crops. The demand would be greater, without doubt, if English growers took the matter in hand, and worked vigorously to secure a larger supply, because prices would be brought within better reach of the middle and lower classes. These are, of course, conditions which the would-be speculator will look upon as alienating his desire. "French gardening" profits, therefore, are somewhat of a bogey, and the adoption of the system needs to be well surveyed before much capital is sunk with the object of ousting our rivals, Continental and Colonial.—S. R. A.

Strawberry, Kentish Favourite.

It is not so long since this Strawberry was distributed as a most promising new early fruiting variety, reports of broad acres of it encouraging growers, both private and market, to invest in varying quantities. Some captivating testimonials, too, helped the inexperienced speculator to decide on a trial, as might reasonably be expected. We had an opportunity of reviewing a forcing stock of specially prepared plants two seasons ago, which then gave rise to acute disappointment in the extent and character of the crop. Naturally a reason for this paucity was found in that the variety, being a new one, over-propagation would be expected to reduce the stamina of the plant, and the expected output would suffer likewise. With this feeling uppermost in the mind, there was no hesitancy to give a restricted trial to the new-comer.

Last season, runners were procured from established plants for occupying early and sheltered narrow borders, immediately fronting forcing and other glass structures—excellent positions, be it said, for aiding the first outdoor crop. At the same time good pot-layered runners were obtained of Leader, an old favourite, which had given strong evidence of being "played out," and which was a few years since disposed of in favour of the now famous Royal Sovereign. This re-introduction of Leader was for the purpose of establishing the identity of the new-comer, and now that the fruiting season has opened there is direct proof that the two are identical. Those familiar with Leader will remember there is an easy and direct means of identity in the plucking of the mature berries, for no Strawberry to my knowledge has so soft and easily severed a stem as Leader, and this characteristic comes out distinctly in Kentish Favourite. This fact is sufficient alone to verify names which are now regarded as identical. The variety undoubtedly found a fair amount of patronage among private and trade growers, but the earlier correspondence conducted in the gardening Press gave rise to doubt as to the fitness of the names. In these days of enlightenment one wonders how individuals can be so easily misled either in the distribution or purchase, when identity is so easily established. That a change of soil and stock will so alter the character of a Strawberry as to mislead the novice is true; but before introducing a new fruit or plant of any kind there should be a close scrutiny made between the merits of past and present.

Leader at one time was distinctly one of our best first earlies for outdoor growth, and we have also seen fine successional crops developed under slow forcing conditions. It has always apparently resented hard forcing, or, at any rate, we have never witnessed successful crops grown under the same conditions as Royal Sovereign or Sir J. Paxton will submit to, for the earliest pickings. On young, vigorous plants quite sensational berries as regards size were formerly gathered from yearling "Leaders," and not only was this a distinguishing merit in this variety, but there were neatness of habit and distinct earliness as associates. What the reason is that Leader has so deteriorated in constitution is not readily explained. There may be some inherent weakness due to parentage which is not found in its lasting rival, Royal Sovereign. Even this usually vigorous scion claims new soil or change of stock to maintain its freedom of leaf and crop in some gardens. Of this we have had repeated evidence in our own garden, and not even then has the change of stock worked out advantageously at all times. Kentish Favourite may prove useful in that, coming from fresh stock and selection, there is a renewal of the old-time vigour of the better known Leader. It is, indeed, retained only under this hope and prospect, and its extent of planting even now will be experimental rather than confidential. Under trial with some gardeners there has been no gain of time with it, Royal Sovereign giving first pickings. In other instances, Leader was distinctly ahead, though perhaps only by a few days. Growers, therefore, will welcome Kentish Favourite only in that a new strain or stock may prove adaptable in certain soils, giving fine fruits with the deep crimson flush on the surface of the berries, which characterise the variety; but to regard it as being distinct from Leader is only to deceive oneself, and the sooner the new name is wiped out the better, and thus preserve the Strawberry from synonymous titles.—W. STRUGNELL.

Fruit and Vegetables in Colorado.

In connection with the valuation by a Board of Appraisers of extensive and valuable water rights in Colorado, now owned by a company and proposed to be acquired by a municipal corporation, the writer was recently employed to collect authentic data, subsequently embodied in an affidavit giving the names and addresses of the growers, as to the value of the crops of irrigated land in Colorado, the value of the water rights and water supply for irrigating such land, and the resulting enhanced value of the land including such water rights. Some of the information so collected, giving the amounts in English money, will probably interest the readers of the *Journal of Horticulture*. (For climatic conditions, see my letter in the *Journal of Horticulture* of 16th January last.)

The last published report, viz., that for 1906, of the Colorado State Board of Horticulture, gives the following figures for the vicinity of Denver:—

FRUIT.	AVERAGE YIELD PER ACRE.	AVERAGE SELLING PRICE.	CROP VALUE PER ACRE.
			£ s. d.
Apples	300 boxes ...	3/9 per box ...	56 2 6
Plums.....	500 crates ...	2/- per crate ...	50 0 0
Cherries.....	350 crates ...	8/- per crate ...	140 0 0
Blackberries...	1,600 quarts ...	10d. per quart ...	75 0 0
Raspberries...	4,000 quarts ...	7½d. per quart ...	125 0 0
Strawberries ..	2,000 quarts ...	5d. per quart ...	41 11 0

NOTE: A Colorado Apple box is 19½ in long, 12½ in wide, and 11½ in deep, and contains 50 lb net weight of Apples. A Colorado Pear box is somewhat smaller, containing from 40 lb to 45 lb of Pears. A crate of Plums is a box containing four square chip baskets holding 5 lb each, or 20 lb of Plums. A crate of Cherries is a box containing 24 chip boxes holding one quart each.

In 1907, near Rocky Ford, in the Arkansas Valley, 160 miles by railroad S.E. from Denver, one field of twenty acres of Cantaloupes netted the grower £600, or £30 per acre. On account of their high quality, Cantaloupes are shipped almost by the train load from that section of Colorado to the large cities of the Middle and Eastern States. The following selections from numerous similar instances are from the Grand Valley, in Western Colorado, over 400 miles by railroad from Denver. During 1906, one alone of the several fruit growers' associations in the Grand Valley shipped 1,152 railroad cars (capacity 25,000 lb) of fruit to over twenty other States, some as far as New York, Quebec, Boston, and Philadelphia.

No. 1. Ten acre orchard (seven acres in bearing Pears, and three in Apples not yet in bearing) sold in 1906 for £200 per acre. The purchaser netted £170 per acre on his Pears in 1907. No. 2. In 1907, 1,600 boxes of Pears grown on three acres, average price 10s. per box, or £800, or £266 per acre. No. 3. In 1907 Pears brought £315 per acre, and in 1906 £240 per acre. No. 4. In 1907 £340 worth of Bartlett Pears grown on seven-eighths of an acre. No. 5. Cherry orchard purchased in 1906 at £200 per acre. In 1907 crop netted £400 per acre. No. 6. In 1907, crop of 2½ acres of Peaches (Elbertas in full bearing) fetched £520, or at the rate of £248 per acre. No. 7. Retired Methodist minister in 1906 bought Apple orchard for less than £200 per acre. In 1907 he netted £300 per acre for Jonathan Apples.

The Denver Fruit Growers' Association has over 100 members, whose products it sells, as well as the products of many other growers, both members and non-members, all living within driving distance of Denver. The following instances, among others, were furnished by the manager of such association. No. 1. In 1907, 1,600 crates of Strawberries sold from five acres, averaging 8s. 4d. per crate, less cost of picking, crating, and marketing, 2s. 4d. per crate, netting 6s. per crate, or £480 net, or £96 net per acre. No. 2. In 1907, over 500 crates of Raspberries sold from rather less than two acres, averaging 9s. 4d. per crate, less cost of picking, crating, and marketing, 2s. 4d. per crate, netting 7s. per crate, or £175 net, or about £87 10s. per acre.

Cabbages yield from 12 tons to 26 tons per acre, according to soil and care. One man in 1907, on less than five acres, had 130 tons of Cabbages, or 26 tons (2,000 lb) per acre, average price 3s. per 100 lb, or £78 per acre, less cost of production, marketing, &c., £12 per acre, or £66 per acre net. Onion crop ranges from 200 to 300 sacks (100 lb each) per acre. The average price for 1907 was 6s. per sack, that is, from £60 to £90 per acre. Cost of cultivation and marketing ranges from 2s. to 2s. 6d. per sack, leaving about 3s. 9d. per sack net, or about £46 13s. per acre net.

Cauliflowers are extensively grown. In 1907 one man had 12 acres which at the unusually low price, locally, of 1½d. per lb, yielded £60 per acre, less cost of production and marketing, about £20 per acre, netting £40 per acre. Early Cauliflowers and Celery are often grown in alternate rows, the Cauliflowers

sold off before the Celery is cultivated, making two crops from practically the same ground. One man in one season sold from one and a half acres of ground £60 worth of early Cauliflowers, and then £194 worth of Celery, or £254 from the one and a half acres, or £169 per acre. He does not employ much assistance.

Another man in 1907 raised 3,000 dozen of Celery per acre, selling at the average price of 13½d. per doz., or £166 10s. per acre; cost of production, marketing, &c., 3½d. per dozen, or £41 13s. per acre, leaving about £125 per acre net. The Market Master, Denver, in 1907, had between one and one and a quarter acres in Celery; had it cared for (i.e., plants raised and cultivated and matured product marketed) at 3½d. per dozen, and netted £100 on the crop.

Turnips.—Average crop, 20 tons per acre; average price, £2 10s. per ton, or £50 per acre. Cost of production, marketing, &c., from £10 to £15 per acre; net from £35 to £40 per acre. Parsnips.—Average crop, 20 tons per acre; average price, £3 per ton, or £60 per acre. Cost of production, marketing, &c., about £10 per acre. Net about £50 per acre. Tomatoes are a field crop. Average yield, ten tons per acre. In the Platte Valley below Denver, one field of 18 acres in 1907 produced 15 tons per acre, canning factory price, £2 per ton, or £30 per acre.

All the land is freehold, the title originally coming (within the last fifty years at the longest) from the U.S. Government. The cultivators are the owners. Leases are the exception. Practically every man therefore handles his land to the best advantage in the way of intensive cultivation, manuring, &c. Land near Denver, suitable for farming and market gardening, without improvements (i.e., buildings and fences), but with ample water right, depending on character of soil, location, &c., fetches from £50 to £60 per acre and upwards. With improvements and water right, the selling value ranges from £60 to £250 per acre, depending on nearness to Denver, transportation facilities, nature of soil, and character and extent of improvements. Where planted in orchard, bush, &c., fruit, actual sales are made at £250 per acre.—THOMAS TONGE (formerly of Manchester, England), Denver, 30th May.

Societies.

R.H.S. Scientific Committee, June 9th.

Present: E. A. Bowles, Esq., M.A., F.L.S., F.E.S. (in the chair); Dr. M. C. Cooke, Dr. A. Voelcker, Messrs. A. W. Sutton, J. T. Bennett-Poë, W. Cuthbertson, H. T. Güssow, G. S. Saunders, W. Hales, W. C. Worsdell, E. M. Holmes, L. de B. Crawshaw, J. W. Odell, and F. J. Chittenden (secretary).

Brugmansia leaves injured.—Mr. Güssow reported that he had examined the leaves of *Brugmansia* shown at the last meeting by Mr. Saunders, and found that they had been injured by some insect which had punctured the leaf, and around this puncture corky cells had developed.

Malformed Orchids.—Mr. W. C. Worsdell reported that he had examined a specimen of *Cattleya intermedia* referred to him in which three flowers had become fused together so that there were eighteen perianth pieces in the resulting fasciated specimen and three properly formed columns. The ovaries, however, were completely absent. Mr. Gurney Wilson, of Glen-thorne, Haywards Heath, Sussex, sent flowers of *Odontoglossum crispum* which were referred to Mr. Worsdell.

Oxalis Bupleurifolia.—Mr. W. Hales, F.R.H.S., showed the interesting *Oxalis Bupleurifolia*, a Brazilian species with small yellow flowers, having the petioles developed into phyllodes, which are remarkable in being placed horizontally instead of vertically, as in most plants possessing phyllodes. In several cases the phyllodes possessed at their tips the three leaflets normal in species of *Oxalis*, though occasionally the terminal one was represented only by a small linear outgrowth, and sometimes all were absent. These leaves are sensitive to contact. The plant grows in shady woods in Brazil, which probably accounts for the horizontal position of the phyllodes.

Malformed Streptocarpus.—Mr. J. W. Odell, F.R.H.S., showed very fine flowers of *Streptocarpus* having in some cases two linear petaloid outgrowths arising between the calyx and the corolla on the dorsal side of the flower, in others stamens were produced in this position. Mr. Odell found that the later produced flowers bore stamens, while the first flowers had the petaloid outgrowths. He had seen similar growths in *Gloxinia*, and in the present case he removed the first developed flowers as soon as the petaloid outgrowths were noticed, and the flowers next produced developed stamens in the position occupied by the outgrowths in the first produced flowers.

Rosa lutea.—In June, 1906, Mr. A. W. Sutton, F.L.S., showed before the committee dried specimens of a yellow Rose from Baalbec which had been named at Kew, *Rosa Eglanteria* (= *R. lutea*). Mr. Sutton subsequently obtained through a lady missionary at Baalbec some pods and shoots of this Rose,

but they were dead when they arrived. Later, however, he received other seeds, from which three plants had been reared, and which were now flowering in his garden. He exhibited a flower of a beautiful clear yellow colour, measuring 3in in diameter. A full account of the history of this plant, which Colonel Prain thought when he saw the dried specimens from Baalbec to be identical with the Indian Rose *Eglanteria*, is given in the Gard. Chron., July, 1906.

Yellow stripes in Daffodils.—Specimens of this well-known disease were received, and some discussion took place concerning it. Various members of the committee detailed their experiences concerning it, and regarded as contributory causes the use of fresh manure, late planting, and too wet a soil. The precise primary cause is at present unknown, but, as Mr. Darlington suggested in his lecture at the general meeting, imperfect root action may be a cause, but whether primary or secondary is not clear.

Abnormal Daisy.—Mr. A. W. Sutton showed an abnormal Daisy having the head inverted so that the florets pointed downwards instead of upwards as in the normal inflorescence; while the stalk passed completely through the centre of the head and was attached at the upper side where there were the usual bracts forming the involucre, but in this case occupying the upper portion of the inflorescence.

Royal Horticultural.

COLONIAL FRUIT SHOW. AWARDS, JUNE 11 AND 12.

GOLD MEDAL to the West Indian Produce Association for a collection of fruits and preserves; the Government of New Zealand for collection of Apples and Pears.

SILVER-GILT KNIGHTIAN MEDAL to the Permanent Exhibition Committee of Dominica for Limes; Messrs. R. Jackson and Co., 172, Piccadilly, W., for preserves; Messrs. T. Rivers and Son, Sawbridgeworth, for fruit trees in pots; Messrs. Yuill and Co., for collection of Apples; the Government of Western Australia for Apples, Pears, and Grapes; Messrs. F. Westmacott and Co., 150, Leadenhall Street, E.C., for wines; Messrs. J. Sedgwick and Co., of Cape Town for wines; Miss Martin, of Willowbrook, Auburn, N.Y., for preserved fruits.

SILVER-GILT BANKSIAN MEDAL to Mr. E. Blakeney, 235, Cashel Street, Christchurch, N.Z., for Apples.

SILVER BANKSIAN MEDAL to Dominica Fruit Growers' Association for Limes; "Tropical Life," 112, Fenchurch Street, E.C., for Cacao beans.

SILVER FLORA MEDAL to the Natal Bulb Growers' Association, Durban, for bulbs of *Lilium Harrisii*.

SILVER KNIGHTIAN MEDAL to Messrs. Clarke Bros., Whangarei, N.Z., for preserved fruits (quality, bottling, and staging); Western Province Preserving Co., P.O., Orchard Siding, for preserves; Messrs. J. Veitch and Son, Chelsea, for fruit trees in pots; G. Anderson, Esq., Adelaide, for collection of Apples.

BRONZE BANKSIAN MEDAL to H. C. Williamson, Esq., Melbourne, for four cases of Apples; the Hon. J. Cox Fillan, of Wall House, Dominica, for Limes; Mrs. Sophia Miller, Moyleen, Marlow, for chutneys.

Royal National Tulip.

MIDDLETON, JUNE 10TH, 1906.

The show at Middleton was almost a failure, the worst but one I have ever seen. The cold, miserable weather experienced almost to the end of May played havoc with the plants, and the sudden burst of tropical heat in the last week of May and the early part of June caused the poor starved buds to open before they had grown to proper size. The heat complicated with thunderstorms and mighty rushing winds, completed the discomfiture of the unhappy grower, and few were the exhibitors able to show flowers on June 10. It has truly been one of the worst seasons ever known for Tulips, and most of us must have been ashamed to show our beds this year, as the percentage of non-bloomers has been so high, and misshapen and crippled flowers the rule rather than the exception. All the southern men were absent, and none of the Yorkshire growers turned up, and the show was, except for the new Middleton growers, simply a duel between Mr. J. Knowles, of Stalybridge, and myself. I managed, by employing all the wits that God has given me, to beat him in the Cup class, but everywhere else, except in the three flames and the breeders, he was supreme, and the show was well worth visiting if only to see how even in this year of difficulty and disappointment unremitting attention can obtain reward. Mr. Knowles showed some fine feathered flowers, his Wm. Wilson was one of the best examples of that variety I have ever seen; and his Sir J. Paxton that won the premier for the best flame was a lovely flower. This fine old variety, which has been in existence about sixty years, is still unapproachable, and seedling raisers are almost hopeless about beating it. Novelties were not numerous. Mr. Knowles showed some feathered hyb. seedlings that will be useful. Breeders were poor, and little need be said about them. The premier breeder was Alfred Lloyd, raised by Mr. Lloyd, of Petersfield, and named after him by myself when his seedlings were dispersed after his death. The judges, Messrs. H. Whittaker, of Malpas,

Cheshire, and C. W. Needham, of Hale, made the following awards.

Class 1.—TWELVE DISSIMILAR TULIPS, TWO FEATHERED AND TWO FLAMED OF EACH CLASS.—1, Mr. J. W. Bentley (Middleton) with Sir J. Paxton, Masterpiece, feathered; Sir J. Paxton, Saml. Barlow, flamed bizarres; Mrs. Atkin, Annie McGregor, feathered; Aglaia, Annie McGregor, flamed roses; Violet Amiable, Amazon, feathered; Talisman and Bob Moorley, flamed byblomems; 2, Mr. James Knowles (Stalybridge) with Wm. Wilson, Sir J. Paxton, feathered; Sir J. Paxton, Dr. Hardy, flamed bizarres; Modesty, Mrs. Collier, feathered; A. McGregor, Lady C. Gordon, flamed roses; Lilian and seedling, feathered; Talisman and Beauty of Litchurch, flamed byblomems.

Class 2.—SIX DISSIMILAR TULIPS, ONE OF EACH CLASS.—1, Mr. Knowles, with Saml. Barlow, James Smith, bizarres; Lady C. Gordon, A. McGregor, roses; Talisman and Stockport, byblomems; 2, Mr. Bentley, with Sir J. Paxton, Garibaldi, bizarres; A. McGregor, Mrs. Collier, roses; Talisman and Violet Amiable, byblomems; 3, Mr. W. Mellalien (Middleton) with Sir J. Paxton; feathered and flamed bizarres; A. McGregor and Modesty, roses; Elizabeth Pegg and Bertha, byblomems.

Class 3.—SIX DISSIMILAR TULIPS, ONE OF EACH CLASS (for small growers).—1, Mr. W. Stringer (Middleton) with Sir J. Paxton, feathered and flamed bizarres; Rose Hill, A. McGregor, roses; Adonis and Violet Amiable, byblomems; 2, Mr. W. H. Hulce (Middleton) with Sir J. Paxton, feathered and flamed; Mabel, A. McGregor, roses; Adonis and Violet Amiable, byblomems.

Class 4.—THREE FEATHERED TULIPS.—1, Mr. Knowles, with Lord F. Cavendish, Lizzie, and Lucy Grey.

Class 5.—THREE FLAMED TULIPS.—1, Mr. Bentley, with Sir J. Paxton, Mabel, Talisman; 2, Mr. Knowles, with Sir J. Paxton, A. McGregor, Talisman; 3, Mr. Stringer, with Lord Lilford, A. McGregor, and Lord Denman.

Class 6.—PAIR OF TULIPS (MAIDEN GROWERS).—1, Mr. Stringer, with Lizzie and A. McGregor; 2, Mr. Mellalien, with Modesty and Sir J. Paxton; 3, Mr. Hulce, with Modesty and Sir J. Paxton.

Class 7.—PAIR OF TULIPS.—1, Mr. Knowles, with Lizzie and Dr. Hardy; 2, Mr. Bentley, with Sir J. Paxton, feathered and flamed; 3, Mr. Stringer, with Lizzie and A. McGregor; 4, Mr. Mellalien, with Modesty and Sir J. Paxton; 5, Mr. Hulce, with Modesty and Sir J. Paxton.

Class 8.—SINGLE BLOOMS.—FEATHERED BIZARRES.—1, 2, Mr. Knowles, with Lord F. Cavendish; 3, 4, Mr. Bentley, with W. Wilson and Masterpiece.

FEATHERED ROSES.—1, 2, Mr. Knowles, with Modesty and Rachel; 3, 4, Mr. Bentley, with Jane and Lizzie; 5, Mr. Stringer, with Miss Edwards; 6, Mr. Mellalien, with Comte de Vergennes.

FEATHERED BYBLOMENS.—1, 2, Mr. Knowles, with Dora and Violet Amiable; 3, 4, Mr. Bentley, with Bessie and Diarmid.

FLAMED BIZARRES.—1, 2, Mr. Knowles, with Sir J. Paxton; 3, 4, Mr. Bentley, with Sir J. Paxton and Dr. Hardy.

FLAMED ROSES.—1, 2, Mr. Knowles, with A. McGregor and Mrs. Telford; 3, 4, Mr. Bentley, with Mabel and A. McGregor; 5, Mr. Stringer, with A. McGregor.

FLAMED BYBLOMENS.—1, 4, Mr. Knowles, with Talisman; 2, 3, Mr. Bentley, with Talisman; 5, Mr. Mellalien, with Guido.

Class 9.—THE BEST FLAMED FLOWER IN THE SHOW.—Mr. Knowles with Sir J. Paxton.

THE BEST FEATHERED FLOWER IN THE SHOW.—Mr. Knowles with Wm. Wilson.

Class 10.—SIX BREEDER TULIPS, TWO OF EACH CLASS.—1, Mr. Bentley, with A. Lloyd, Gerald, bizarres; Olivia, Dawn, roses; Diarmid, seedling byblomems.

Class 11.—THREE BREEDER TULIPS, ONE OF EACH CLASS.—1, Mr. Bentley, with Gerald, seedling, and Thurslan's rose seedling; 2, Mr. Stringer, with Lloyd's 219, A. McGregor, and Beauty of Litchurch.

Class 12.—SINGLE BLOOMS.—BIZARRE BREEDERS.—1, 2, Mr. Bentley, with Sir J. Paxton and A. Lloyd; 3, Mr. Mellalien, with Goldfinder.

ROSE BREEDERS.—1, 2, Mr. Bentley, with Mdme. St. Arnaud and A. McGregor; 3, 4, Mr. Mellalien, with Rose Hill; 5, Mr. Stringer, with Mrs. Barlow.

BYBLOMEN BREEDERS.—1, 2, Mr. Bentley, with seedlings; 3, Mr. Mellalien, with Beauty of Litchurch.

BEST BREEDER IN THE SHOW.—Mr. Bentley with Alfred Lloyd.—J. W. B.

Birmingham Botanical and Horticultural.

The recent early summer exhibition of orchids and early summer flowers, annually held under the auspices of the above society, again proved to be one of the best. The next exhibition is scheduled for July 15, when prizes are offered for Roses, Sweet Peas, and hardy garden flowers. The shows in question serve to bridge over all stages of floral display between the incoming of the Daffodils in April and the Carnations and Picotees in August. The invitation of the committee, headed by the president (Neville Chamberlain, Esq.), and the hon. secretary (Mr. T. Humphreys), for honorary exhibits was generously responded to by such notable exhibitors as Mr. Joseph Chamberlain, Highbury; Mr. W. Waters Butler, Southfield; Richard Smith and Co., Worcester; Bakers, Wolverhampton; Robert Sydenham, Gunn and Son, H. N. Ellison, and others.

In the competitive classes the response was numerically

very meagre, only one exhibit in each class. Mr. J. Mackay, of Highbury, staged half-a-dozen specimen orchids of high merit, and Mr. Robert Usher, gardener to Mr. J. A. Kenrick, Harborne House, with a dozen plants of Astilbe Queen Alexandra and Hydrangea Hortensia, were first and third respectively. The Highbury collection of orchids was accounted the largest and best yet seen at any one of the Birmingham shows. Also very excellent was the extensive and choice collection of orchids set up by Mr. R. H. Jones, gardener to Mr. W. W. Butler, which was backed up by a line of white Lilliums in pots. Messrs. Gunn arranged an attractive group of Roses in pots, and won a silver medal. Messrs. Smith and Co. had a representative collection of hardy herbaceous and other flowers. (Bronze medal.) Mr. R. Sydenham won a silver medal for a nice collection of Spanish Irises and Ixias. Messrs. Baker and Sone staged a collection of long-spurred Aquilegias and Oriental Poppies. (Silver-gilt medal.) Mr. H. N. Ellison staged a very interesting collection of exotic and hardy ferns. (Bronze medal.)—G.

Crawley (Sussex) Gardeners'.

A TRIP TO WARMHAM.

By the kind invitation of O. J. Lucas, Esq., J.P., Warmham Court, Horsham, the members of the above association made their first outing of the season on Wednesday, June 10. The party left Crawley at 2.30 in the afternoon in a motor char-a-banc, seating thirty. After a very enjoyable journey through the immediate districts of Fay Gate and Horsham, Warmham Court was reached at half-past three, and the party was met by Mr. Duncan, head gardener, who escorted the members around the beautiful, interesting, and well-kept gardens and glass houses. "Something of everything" was here to be seen, and each respective thing of its kind spoke of the very able treatment it receives at the hands of Mr. Duncan. Mr. Lucas, the owner, is keenly interested in his gardens, and believes in doing things well.

The orchids were a centre of admiration, and the collection is unique, all the plants being their own hybrids, and everyone knows what gems are contained. Mr. Lucas exhibits from time to time at the R.H.S. meetings. Vines, Peaches, Nectarines, Tomatoes were each seen well laden with fine fruits. The terraces, Rose garden, &c., was also inspected. The carpet bedding and clipped trees proved very interesting to many members. Then a walk through the magnificent rock garden came as a pleasure, and many words of admiration were heard, whilst the same can well be said of the wild garden, some nine or ten acres in extent, which has been formed within the last three or four years. Here one saw judicious groupings of Austrian Briars, the copper and single yellow being particularly fine; also climbing Roses on rough poles, Genistas, Brooms, Weigelas, Pyrus, Crataegus, Lupinus, and a hundred and one other good subjects in variety.

The crops in the kitchen garden were splendid. Strawberries and other fruits promised well. A most exquisite sight right through the long middle walk was a grouping of Violas in a great variety of shades. This alone formed a feature in itself, and well repaid the visit. A walk through the arboretum gave the party a representative lot of subjects to admire. Mr. Duncan very kindly and courteously answered the many questions put to him by the members, and before parting, on the proposition of the hon. secretary, Mr. H. Hemsley, a hearty vote of thanks was accorded to Mr. Lucas for kindly allowing the association to inspect the gardens, and to Mr. Duncan for his assistance that day. Tea being partaken of, and a walk through Horsham following, Crawley was reached about 8 p.m., all fully delighted with the time spent.—H. H.

New Notes.

Among the good things now in flower are Pulmonaria Richardsoni, Hedysarum neglectum (with purple flowers), Dianthus (species), Anthericum liliago, Camassias, Asphodeline lutea, Ranunculus acris fl.-pl., with brilliant button-like yellow flowers. A bed of Sweet Pea Mont Blanc is quite one of the finest features in the open air; while a change, and vastly for the better, has been wrought in the circle at the west end of the main walk. The grass has been done away with, and there is now a mounded mass of pink Ivy-leaved Pelargoniums.

In the rockery are nice masses of Ramondia pyrenaica and R. p. alba, Podophyllum Emodi, with handsome foliage and feathery cream-hued inflorescence. Geranium cinereum album is dwarf, with handsome flowers. The new scarlet Primula Cockburniana also holds out well. In the alpine house a week ago there was Campanula spicata, bearing stout purple spikes 15in high; Saponaria Wiemanni, growing cushion-like, and with bluish flowers, was another pretty subject. Meconopsis aculeata has been previously mentioned, and now we name Saxifraga cotyledon Icelandica, which is a stronger variety than the type, with immense panicles of white flowers. The Iris garden is just past its best; but the border of annuals (Duchess Border) is gaining daily in interest.—S. E.

Windsor and Frogmore.

Visit of the Royal Horticultural Society's Committees.

It was a red-letter day to some of us. The Council of the Royal Horticultural Society had been honoured with the gracious consent of His Majesty the King to arrange for a visit of the society's committees to the Royal Gardens at Frogmore; and this visit, which had been excellently planned, and was carried out without a hitch, took place on Wednesday week, June 10, in glorious summer weather. A more enjoyable day could not possibly have been.

The company met at Paddington Station, London, at noon, and journeyed in reserved carriages by the Great Western Railway to the Royal Borough of Windsor, where others of the committeemen were waiting; and under the ciceroneship of Lieut.-Col. Holford (whose promotion from the rank of Major had been announced the night previously), and with Sir Trevor Lawrence, Bart., Sir John Llewelyn, Mr. J. Gurney Fowler, Rev. W. Wilks, Mr. Harry J. Veitch, and others to the number of eighty, the party directed their steps to the ancient Guildhall, where his Worship the Mayor of Windsor, attired in his robes of office, awaited to receive his guests of the day.



The Kitchen Garden Terrace, Frogmore.

Soon the members had been ushered to the dining hall, upon whose historic walls are many portrait paintings of Royal personages, including those of the late Queen and the Prince Consort, and a magnificent life-size painting of George IV., "the first gentleman of Europe."

The luncheon was enjoyable, like all else in that day's proceedings, and was generously provided by the Mayor, whose additional guests completed a muster of 120 persons. Seated at the top table were his Worship the Mayor, in the chair, Sir Trevor Lawrence, Col. Holford, the Vicar of Windsor, Sir Albert K. Rollit, Rev. Father Brampton, Rev. S. K. Tahourdin, and Rev. Canon Fowler, while the croupiers were members of the borough council.

The toast list was short. The Mayor proposed the toast of "The King," then Sir Trevor Lawrence, on behalf of the Royal Horticultural Society, proposed a toast to his Worship the Mayor. The company was very much indebted to the Mayor, and were having experience, in a most agreeable direction, of English municipal institutions. Sir Trevor was not sure that he would not rather be Mayor of the Royal Borough of Windsor, with its great historic traditions, than Lord Mayor of London. He feared, however, he was now too old to be ambitious for either office. As another evidence of municipal hospitality, Sir Trevor alluded to the visit this week of a deputation from the R.H.S. to the jubilee of the Grand Yorkshire Gala, where the delegates were to be entertained by the Lord Mayor of York. On behalf of the Royal Horticultural Society's committees, he

heartily thanked the Mayor for his full-hearted and generous reception.

The Mayor, in reply, said he was honoured indeed to be entertaining representatives of the Royal Horticultural Society. He was more than paid in the assurance that he was administering to the day's enjoyment. He felt his year of office slipping away, and he had not accomplished one-tenth part of the objects of his desire. But he was proud of being Mayor of the Royal Borough of Windsor. He hoped to keep Windsor to the front. It was a city set on a hill, a city of noble memories. He trusted that every pleasure they found to-day might be tenfold increased at another visit, and if they came, he hoped they would again bring as bright a day.

St. George's Chapel, a gem of perpendicular architecture, was then visited, and judging by the expressions of surprise and admiration that were overheard on every side, this beautiful and famous edifice was hitherto unknown to many who were present. Adjoining St. George's Chapel is the Albert Memorial Chapel, a marvel of interior architectural magnificence, in which is a cenotaph to the late Prince Consort; also the tomb of the late Duke of Albany; and the sarcophagus over the grave of the Duke of Clarence. In another chapel lies the beautifully sculptured recumbent marble effigy of the ill-fated Prince Imperial, killed during the Zulu War, and whose sword hangs upon the railing near his tomb.

Windsor Castle, the most imposing of the royal residences of Europe, as it towers with its massive walls above the charming borough of Windsor, and overlooking twelve of the fairest of English counties from its Round Tower, was the next object of our visitation. The abounding richness of its internal equipments surpasses description. It was to Colonel Holford's forethought that the party owed the pleasure of viewing these. Among the many features of interest were the Royal collections of china, the Grand Staircase, the Presence Chamber, with splendid tapestries, the ceilings

ings painted by Verrio, and much most florid and remarkable wood-carving by the self-taught Grinling Gibbons. The armoury contained Henry V.'s cradle—an oblong oaken box, swung on treddles, and long since worm-eaten. This for the Hero of Agincourt, whose conquests added France to the English King's dominions. Here, too, is a sword valued at £1,000. In another chamber there is the Peacock Throne of Tiboo Sahib, a small golden peacock from it being worth £70,000. St. George's Hall is emblazoned on walls and ceiling with escutcheons of the peers of the realm, and small brass tablets on the lower walls represent the various Knight's of the Garter. The Waterloo Chamber, built in the form of a ship's saloon, commemorates the battle of Waterloo. It is the largest of the State apartments, and is hung with oil-paintings by Lawrence. The spacious carpet upon its floor weighs over three tons, and was made by convicts at Agra, in one entire piece. Lastly, a mention is surely deserved for the Van Dyke room of Royal paintings—portraits of the Charles's, King William III., and the Georges, with their queens.

Ere passing to the terrace gardens and the park, most of the company had a hasty glance at Sir Dighton Probyn's pretty and quaint little alpine garden upon and around one of the slopes of the castle. His Majesty's private secretary takes a keen personal interest, we were told, in this charming retreat.

The inspection of the foregoing features had occupied till half-past three o'clock, and so a move was made by way of the

Terrace Gardens through the Great Park, with its scores of acres of mown turf, observing on the way the new golf course; onward to the Victoria and Albert Mausoleum in Frogmore grounds. What a sublimely regal and solemn resting-place has our late beloved Queen, within these walls of precious stones and costliest marbles, inlaid and painted and patterned in every part! There is the altar where Her Majesty used privately to pray and meditate, behind these already graven images of herself and her Consort, lying side by side upon a raised dais, and hewn as from one piece of solid spotless white marble. Nothing that I saw during the day touched me more than these beautiful effigies, that of the Queen representing her as she appeared in 1861 when Prince Albert died.

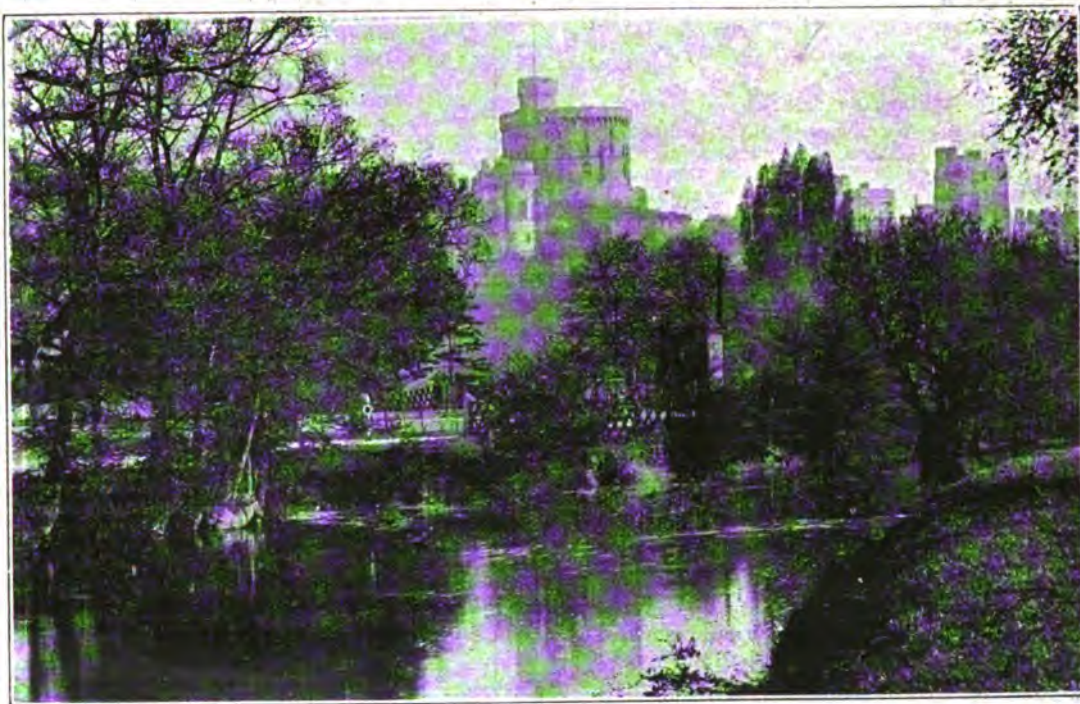
What shall one say of the gardens? They are very extensive; they are in the highest state of excellence in point of cultivation, and they contain much that called for the highest praise, and which probably made some of the gardeners rather envious. Of course, with such enormous and constant demands for fruits, flowers, and vegetables, in season and out of season, Frogmore Gardens are, in one sense, huge manufactories. At this season, or during the Ascot week, thousands of ripe Strawberries from under glass are sent to the Royal table. Fruit trees in pots struck the eye in quite noticeable quantity, each bearing its quota of developing fruits; also vinerias in all stages, from the crops already cut, to the latest, just at the stoning period. Scores of Melons, too, must be sent away every week—one might say almost every day.

Then in the floral and plant department there are one or more houses devoted to one kind of plant, as, for instance, in the following order we noted a vast conservatory filled with palms, numerous houses having Cattleyas, a Caladium house, a Croton house, an Anthurium house, another given over to Gardenias, to Calanthes, to Begonia Gloire de Lorraine, several filled with Malmaison and other Carnations; a Fuchsia house, one of fancy Pelargoniums, one each containing only *Lilium longiflorum*, *Humea elegans*, *Coleuses*, *Hippeastrums*, *Hydrangeas* respectively; and so on. There is a continuous span-roofed corridor to which the innumerable span houses are attached at right angles. This corridor is kept furnished with seasonable flowering plants, and just now these comprise *Spiræas*, *Azaleas*, huge *Hydrangeas*, *Hortensia* (4ft high), *Canterbury Bells*, *Liliums*, *Schizanthuses*, *Bottle-brush tree* (*Metrosideros floribunda*), as standards; *Azalea roseiflora*, very pretty; *Saxifraga pyramidalis*, a graceful decorator; *Callas*, *Clivias*, and other things. But while the stages at either side (set low, and well beneath the eye) are gay, the roof is still more gay. All the way along one sees the resplendent drapery of the graceful *Fuchsia*, the quaint and picturesque *Rhodochiton volubile*, with its tubular purple flowers; also *Passifloras*, *Tropæolum Fireball*, *Solanum Wendlandi*, *Solanum jasminoides*, trumpet *Honeysuckle*, and other things like these. *Gloriosas* were exceedingly vigorous in the stove or foliage house, where also one noticed well-grown *Ixoras*.

No one could help being impressed with the scrupulous cleanliness of everything and every place. It was like the resplendent orderliness aboard a man-o'-war, with all the brasses burnished and shining. *Rex Begonias* grew beneath the stages of the *Cattleya* houses; *Isolepis* (*Scirpus*) *gracilis* and *Pilea muscosa* draped the front below the stages in other houses, and there was nothing to offend the eye. In a word, thoroughness is evidently the motto of Mr. McKellar, His Majesty's gardener-in-chief.

Of course, one could have spent hours where only minutes were allotted. In the open air the chief features that impressed the writer were the *Roses* and *Violas*. *Roses* were everywhere, and so early into flower! Beds of them; arches of them; masses and wreaths of *Roses*. Mr. Mawley was keenly alive in this department; while Messrs. Gibson, of Welbeck; Coomber, of The Hendre; Fyfe, of Lockinge; also Alex. Dean, Owen Thomas (back again looking over old scenes), G. Wythes, J. Lyne, H. Markham, G. Woodward, S. T. Wright, J. McIndoe, J. Jaques, W. Pope (late of Highclere Castle), and others of the Fruit and Vegetable Committee were seen in parties exploring the fifty acres of walled kitchen garden. The soil is an ideal deep alluvial loam, and the garden is well sheltered. All the south walls are covered with young *Peach* and *Nectarine* trees, which, we were informed by Mr. Harris, the chief foreman, never give any trouble and bear good crops. An interesting feature was the curvilinear trellises bearing *Pear* trees, and though the flowers, being all over the curve, are fully exposed to frosts, the set this year is remarkably good. The new *Apple* orchard, too, westward of the spacious and well-appointed bothy, shows signs of great promise, and though many of the trees had no crops, or light crops, they were, so far as one could see, all clean and vigorous.

During the past six years the gardens have been quite



A View of Windsor Castle.

revolutionised, thousands of pounds sterling having been expended upon new ranges of pits and houses, and on the new walls and the bothy. There are fifteen young men therein, exclusive of the married foremen. Running east and west of the garden, past the bothy, and backed on the south side by the wall of the fruit-range, and on the other by a trellis of oblique cordon *Pears* and the surrounding orchards, there are two 14ft hardy plant borders running for half a mile in straight line. *Pyrethrums* and *Pæonies*, *Oriental Poppies* and dwarf *Pinks*, masses of the true *Geraniums*, pyramids of the deep blue *Anchusa italica* *Dropmore* var., with *Stocks*, *Erigeron philadelphicus*, *Incarvillea Delavayi*, and many other things to follow on were among the occupants that furnished a bright and well-balanced display.

Another feature worthy of a note was the *Sweet Peas* (variety *Miss Willmott*) in small tube, all in flower, and set in lines to screen the outside of the long succession of lean-to fruit rooms and *Grape* store-houses. Seen from Mr. McKellar's house they were bright and pleasing.

But the time flew all too soon, and about five o'clock the carriages came round to carry us back to the Royal Borough, which was reached after a charming drive through part of the park, in time to partake of "the cup that cheers but not inebriates" ere settling down again in the returning train. The day was in every way a success, and one hopes the R.H.S. may make this function an annual one.—J. H. D.

Young Gardeners' Domain.

*** The prize has been awarded to F. W. Sparks, The Gardens, Copped Hall, Epping, Essex, for his article on *Hippeastrums*.

Hippeastrums (Amaryllis).

This showy bulbous-rooted subject is springing into greater favour each year, and when one sees the beautiful colourings and markings of those exhibited at the Temple Show annually by the various trade and private growers, a good idea is gained as to the reason of their increasing popularity. The original species were first introduced from the West Indies and South America, and include *H. equestre*, *H. vittatum*, *H. pardinum*, and *H. Leopoldi*, and it is from these that the beautiful varieties we now possess have been produced.

They may be increased either by offsets or from seeds. The



Part of the Corridor, Frogmore.

first is a good way to increase a desirable variety, as these offsets are usually plentiful. The seed should be sown soon after gathering, in pans filled with loam, leaf mould, and sand, passed through a $\frac{1}{4}$ in sieve. Place them in a temperature of 65deg to 70deg Fah., keeping the soil moist, and in a fortnight the seedlings will be through. When they are ready pot them singly into thumb-sized pots, and plunge them in cocoa-nut fibre in a well lighted house where the temperature does not fall below 65deg. The after treatment consists of potting them on as required till the 48-size is reached, and in these they should flower. Seedlings should not be dried off during winter, though they will not require such large amounts of water as in summer. The soil for potting should be three parts fibrous loam, one part leaf soil, one part sand, and a sprinkling of soot. When they are in flower those of good form and colour may be retained, while others are best thrown away, for it is by this selection of varieties and judicious crossing that so many good varieties are raised.

Flowering bulbs are well watered, and are fed till growth is completed, when they should be gradually dried off in a sunny and airy house or pit. In December the plumpest and ripest bulbs may be knocked out of their pots, all the old soil and dead

roots shaken off (also the offsets aforementioned), and pot them in 32-sized pots in the soil previously advised. Plunge them in fibre in a bottom temperature of 70deg, and they will do without water for a week or two, till they make new roots, when they soon push their flower spikes. To prolong the season, start them in batches. Showing what may be done in this direction, Mr. Chapman, of Westonbirt, who usually exhibits at the Temple Show, staged a group of these flowers at the Shrewsbury Show in August. Here we have been cutting since September, and at that time of the year such showy flowers are much appreciated by the lady of the house. Occasionally one gets a variety with a very pleasing scent, and in this case they are doubly charming. Red spider and thrips are the worst pests, but with plentiful syringing and occasional fumigation with XL All, these are held in check.—F. W. S., Copped Hall.

Roses.

To me the Rose appeals as being the queen of all flowers, and I might say there is nothing more beautiful to look upon in the garden than a really good bed of well-developed blossoms. To get these to perfection requires a great deal of care, which, of course, if thoroughly exercised in the right way, will, no doubt, prove very beneficial to the grower in the end. The first thing to do would be to have your ground well prepared; secondly to procure good strong trees, even if the price be a little above the average; and thirdly, to keep a look-out for blights during the growing season, and see that the beds do not want for water during that period, especially if the weather is inclined to be tropical. Now for getting to work with the making of the beds. Providing your soil is not one of the best, and you have the opportunity of getting some good loam, I should advise taking the soil out to the depth of 2ft 6in and throwing the top spit to one side. Having opened the bed, start to fill in a foot depth with edgings of pathways, or some good fibrous turf from any hedge or bank which is being pulled down. Then lay on the top a good dressing of manure, say 6in thick, after which would come your top spit already laid on one side. Another thin dressing of manure may be given, and fill in to the top with good loam, allowing enough overplus for the bed settling. When planting the grower should see that he allows enough room between each bush, say 18in, and cover the graft about 1½ in deep. They can be left now until pruning time, which is between the end of March to the latter part of April. A good many make the mistake and prune too early. The consequence is the young shoots are pinched by late frosts or cold winds, and this means a great drawback towards the making of good trees. When the trees have started nicely into growth they must be seen to as regards watering, and must be kept clean. I would strongly advise a good mulching of fairly rotten manure for each bed. This both feeds the trees and lessens drought. I can thoroughly recommend Frau Karl Druschki, Lady Battersea, Caroline Testout, La France, Liberty, Madame Ravary, Kaiserin Augusta Victoria, and Madame Jules Grolez as being good bedders, which have done well under the above mentioned conditions.—T. TELFORD, Lowther Castle, Penrith, Cumberland.

Misnomers.

Probably no class of plants suffer so much from this common thoughtlessness as those of the natural order Liliaceæ. There is, as an instance, the Lily of the Valley. It is not a *Lilium*, therefore it cannot be a Lily, yet the argument goes, and it belongs to the same natural order as the *Liliums*. Just so, and so does the wild Garlic, yet no one would think of calling it a Lily. There are the Lent Lilies just over. They are not even of the Liliaceæ; but the Tulip is, and no one thinks of calling that a Lily. Besides the Daffodil, many Amaryllises are termed Lilies. We have the Scarborough Lily (*Vallota*), the Jacobean Lily (*Sprekelia*), the Belladonna Lily (*Amaryllis*), the Guernsey Lily (*Nerine*) from Table Mountain—another misnomer. Apart from these there are others which have not so much as a semblance to a Lily. The most striking probably is the Arum Lily. Nobody would wish to call our common *Arum maculatum* a Lily. Then why call one of the same order, from another country, by the name of Lily?

Again we have the Water Lilies. They are Nymphaeas, with a natural order peculiar to themselves. We often hear people, and many who ought to know better, speaking of the Agaves as the American Aloes. Maybe they would feel surprised if they knew that no Aloe has been found as indigenous to America. We have the Dog's-tooth Violet, yet it is not a Viola; and the Water Violet, which belongs to the Primulaceæ. Then again, the so-called air-plants, the most common being the genus *Aërides*. Like the Vandas (closely allied), they are but epiphytes, and would not long survive were they wholly dependent on the air for nourishment. That pretty little Bromeliad, *Tillandsia ionantha*, practically known only to travellers in Mexico, is also termed an air plant; it is, of course, epiphytal.

Now turn to a different class of plants, the Hypericum, known as the Rose of Sharon; the *Cistus*, called the Rock Rose; and the *Helianthemum*, familiar as the Sun Rose, and so we

go on. Roses we have which are not Roses, neither do they belong to the Rosaceae. We call the *Callistephus* Aster, and the true *Asters* Michaelmas Daisies. The Currants of commerce are not of the *Saxifragaceae*, but are Grapes of the same natural order as the Virginian Creeper, which is a *Vitis*. It is a strange medley, and takes a lot of reasoning out, and is altogether an interesting study.—P. W. A.

Management of the Conservatory.

The conservatory should be made enjoyable at all times of the year, more particularly in the winter when the weather is cold and gloomy outside. One of its greatest needs is cleanliness, which must come first and foremost. What is a greater eyesore than to see a lot of slimy green pots, dirty stagings, and dirty floors, which not only are an eyesore, but also most harmful to plant life. So before going any farther, let us see these necessities attended to. There is nothing like soft soap and water for removing dirt of any description. In furnishing the house with plants, if foliage and flowering plants are to be accommodated, it is fairly difficult to lay down rules for planting. Pleasing effects may be produced by giving prominence to such striking plants as *Dracenas*, palms, *Cycads*, and tree-ferns. It is then necessary to leave spaces for the introduction of flowering plants at their season, most of which can be more successfully grown in other houses. Should the position of the conservatory be too much shaded for flowering plants, it will then be advisable to furnish it with such foliage plants as are able to withstand such conditions.

Conservatories that are kept furnished in the winter months with a mixed assortment of plants in flower will need a temperature between 45deg and 55deg. To maintain the aforesaid temperature during severe weather stoking must be carefully attended to, and then gradually decrease fire heat as the days get brighter and warmer. Cold draughts should be avoided at all times, for they cause mildew and hosts of other diseases; but should the former put in an appearance a slight dusting of the foliage of the affected plants with flowers of sulphur will soon check, or even wipe out, this evil altogether.

One of the conservatory's main features is careful watering, always being sure to withhold or to give liberal supplies of water to plants that need it, and if possible do all watering in the morning, so that the damp may evaporate before closing up at night. The plants and their surroundings should be kept as neat and tidy as possible by carefully picking off faded flowers and dead leaves, and by careful tying and staking, always avoiding stakes that are too tall for a plant, as they are unsightly.

Ventilation is yet another of the main objects of interest. June, July, and August, being the three hottest months of the year, naturally want closely watching as regards ventilation. A light buoyant atmosphere can be obtained by admitting air freely through the day, and oftentimes a little at night, not forgetting to shade either by blinds or otherwise.—R. FALLOWES, Sefton Park.

Poinsettia pulcherrima.

I think a few lines on the cultivation of *Poinsettias* will interest the readers of our Domain. Plants are propagated each year from cuttings which are produced from those that have flowered. When the plants have finished blooming place them in a house having a temperature of 50deg to 55deg (not in a stove), and keep dry to rest them. They will require water occasionally to prevent them from getting dried. About April give more water at the roots, and syringe overhead, when young shoots will soon be produced. When about 4in long take cuttings with a heel, and insert singly in thumbs or small 60's. Then place them in a brisk bottom heat in a propagating case, and keep them close and shaded, and lightly spray once a day to keep moist and fresh. They will be rooted in a short time. I find they root much easier if grown rather cool previous to taking the cuttings than if grown in a stove. When they are sufficiently rooted pot them into large 60's, using a compost of three parts good loam, one part leaf mould, and a little sand. After they are potted allow but little air, and shade from the sun until the young plants gain a hold, in a temperature of 60deg to 65deg. When these pots are full of roots they should be potted into 48's or 32's, using the same compost, but in a coarser state. During the summer grow the plants in cool pits or frames, leaving air on night and day. On warm days remove the lights altogether, and expose them to the full sun. By this treatment the wood gets well ripened, which is of primary importance if good bracts are to be obtained. Carefully water and syringe the plants every day.

When the pots are full of roots afford them liberal supplies of weak liquid manure or some approved fertiliser. Towards the end of September place the plants in a stove. When the bracts are fully expanded, if given a lower temperature of 50deg to 55deg they will last much longer in good condition. By this treatment plants 4ft and 5ft high can be grown with bracts 12in to 15in wide.

If dwarf plants are required about a foot high, the following

method may be adopted:—About the first or second week in September with a sharp knife cut the stems half way through about 5in or 6in from the top, leaving them for ten or twelve days until callused. Then cut off, placing each in a 60-sized pot, and plunge in a brisk heat in a propagating case. They will be rooted in three or four weeks. Then pot them into 48's or 32's, using the same compost as before.—J. L., Newnham Paddox.

Celosia pyramidalis for Bedding.

In April sow the seeds thinly in well drained pans, and place in a temperature of 60deg to 65deg. As soon as the seedlings are large enough to handle, pot into 2in size, and place them on a shelf near the glass; shade from brightest sunshine, and never allow them to become dry, or to be checked by draughts, as both are fatal to success. As soon as the roots have begun to work nicely around the pots they should be moved into 54-sized pots in about the same temperature. Avoid overcrowding, as half the quantity of plants will give much better results than plants standing close together would. Always remember that free circulation of air is necessary. In a short time they will be ready for their final potting, which must be done without delay. Use a richer compost, and pot into 32-sized pots. The following compost is best:—Two parts loam, one part leaf soil, half part each of dried cow dung and silver sand. Grow on in the same temperature, keeping the plants as near up under the glass as possible, or they will soon become drawn. As the weather gets warmer gradually give more air, and when safe move them out into cold frames. Arrange them close up under the lights, keep well watered, and syringe between them and also lightly overhead, closing the frames early for a few days. As they grow raise the frames by means of a brick under each corner, as they must not be allowed to come in contact with the glass. Plant out as soon as possible in preference to keeping them growing by using manure water, or the soil is likely to become sour. If massed in beds or borders, or used as dot plants, they will be found very effective. When actually to bed out must be left to the grower's own discretion, as so much depends on the locality. Always remember that the *Celosia* must be kept growing; avoid draughts; keep free from insects; and grow as near the light as possible.—H. NICHOLS, New Gardens, Elveden, Thetford.

Calanthe Yeitchi.

The time has arrived when this orchid should be well into growth, and when grown well there is nothing to surpass it for conservatory or house and table decoration. The pseudo-bulbs should be started in a temperature of 60deg. Having cut away a portion of the old roots, leaving sufficient to support the bulb in position on the compost when potted, place two boxes in an upright position on a layer of sphagnum or other moss. A good many of the old bulbs preceding the last made one, if placed in the same way, will push out young growths. Although they may not flower the first season, satisfactory results may be obtained from them the second year. When the young growths make their appearance the material should be moistened to encourage the growths that will form the pseudo-bulbs for flowering. As growth advances and roots begin to push out they should be potted, using 5in and 6in pots, which should be filled to one quarter of their depth with clean crocks. The compost should consist of two parts turfy loam, one part turfy peat, one part chopped sphagnum, and one of dried cow manure, broken small. The whole should be sifted to remove all fine material. Firm potting must not be resorted to, thus giving the roots every chance to ramble. Place them in a temperature of 60deg for the first few weeks; after that a temperature of 70deg will suit them best.

Great care must be taken with the watering, as many failures arise through overwatering in the early stages of growth. Damp the staging between the pots, and shade from bright sunshine, as the foliage is very easily scorched. During the growing season applications of cow and sheep manure-water in a weak state are beneficial, with an occasional dose of weak soot water. In no case use artificial manures. Syringing should not be resorted to, as this causes the "black spot" to appear on the pseudo-bulbs. Damping between the pots with manure water sometimes will benefit the foliage. Red spider and scale often makes its appearance on the foliage, but an occasional sponging will keep these in check. Towards September, when the growth will be completed, a lower temperature is essential, gradually exposing them to the sun to ripen the bulbs. Growers differ as to their treatment during the resting period. Some advocate placing the pots on shelves as soon as the flowers are cut in a temperature of 60deg, where they may get all the sun, and no root moisture is obtained. Others prefer shaking them out of the old compost, and storing them in boxes in dry sphagnum moss, whereby considerable room is gained. The former method is carried out here; and I may say the *Calanthes* were a success, some spikes measuring over 4ft, and carrying on an average forty flowers of good size and splendid colour.—C. QUANT, Lilleshall Gardens, Newport, Salop.



Fruit Culture Under Glass.

EARLY PEACHES.—The earliest trees will now be clear of their fruits, and now is a good time to assist the trees with liquid manure, especially to trees that have borne heavy crops. The trees, if mulched as advised some weeks ago, will have exhausted the material then given, and it should be renewed. Cow manure partially decayed is excellent. The trees should be well cleansed by hard syringing daily, as it is equally important to keep the foliage clean till the wood is well matured. Ventilate freely during the day, and when the growth is well finished expose the trees as much as possible by opening all the ventilators.

PEACH TREES ATTACKED BY RED SPIDER.—This common pest frequently attacks trees after a spell of sunless weather, and often, in spite of the best attention to cultural details, when the trees have been at all dry or carrying a crop, the pest gains a footing. Black aphids so soon cripples the new wood and spoils the next year's crop that no time should be lost in getting rid of it. After the crop is cleared, any useless wood may be removed to enable the trees to finish their growth; then lay in new wood. For black fly strong doses of quassia will soon remove the pest; and for red spider, a sulphur solution should be employed.

MIDSEASON PEACHES.—Much may now be done to forward the crop by sun heat, closing early to retain the warmth, and by careful firing, so that sufficient heat circulates through the hot-water pipes to maintain a genial temperature. Expose the fruits as much as possible by removal of any growth not required, or by tying in side shoots. Fruits that are underneath the trellis often require a few of the upper leaves to be removed to get colour; but in the case of Nectarines grown rather close to the glass this advice does not apply, as the fruits, when nearly ripe, soon scald. I have found Cardinal to split badly if kept too moist overhead when full grown. It is important to see that the borders are in a moist condition.

RIPE PEACHES AND NECTARINES.—A word as to gathering and keeping the fruits. The old system of placing nets or hay under the trees for the fruits if they fall is by no means beneficial. Far better to go over the trees daily, late in the day if possible, and place the fruits in a cool room. Gather them before they are full ripe and they will then be of better flavour and keep better.

LATE PEACHES AND NECTARINES.—Here there will be much work in the training of shoots and removal of those not required, also the thinning of fruit. Should mildew appear spray with a solution of sulphur. Sulphide of potassium is excellent, but it discolours the paint.—G. W., Brentford.

The Flower Garden.

TREES AND SHRUBS.—Periodical cleaning is necessary amongst the trees and shrubs both in beds and borders to keep them free from weeds, and the surface soil stirred. Any which have been recently planted should be kept watered and mulched if the latter has not already been done. Rhododendrons, including Azaleas, will derive much benefit from a mulching of half-decayed leaves. Lilliums also may receive similar treatment. Recently planted evergreens, especially Hollies, will benefit by spraying with the garden engine morning and evening on hot days. The growths on the bulbs of Scillas and other spring-flowering subjects used for carpeting beds of trees and shrubs may now be hoed off.

BEDDING OUT.—It is advisable now that the weather is apparently settled to push on this work. The sub-tropical and more tender plants may now be put out and securely staked. In the pleasure grounds large beds devoted to Dahlias are very effective, especially when only one variety is used, and that a free bloomer. We occasionally have a failure from some cause or another of a bed of trees or shrubs, which we almost invariably fill with Dahlias for the summer and autumn.

HERBACEOUS AND MIXED PLANT BORDERS.—The work of planting up any vacant spaces in these borders can be proceeded with. Surplus plants from bedding out come in useful for this purpose, in addition to those which were grown especially to take the place of Polyanthus, Arabis, Alyssum, &c. The growths of Sweet Peas will require attention to keep them

supported by the stakes. We often find it advisable to place strings round the clumps and along the rows to assist in keeping the growths in position. Stake Hollyhocks, tall-growing Lilliums, and Dahlias to prevent them being damaged by wind.

PLANTS IN THE RESERVE GARDEN.—In many gardens where ample supplies of cut flowers are required, a piece of ground is often set apart to supply this need. There is then little need to spoil the beauty of plants in the flower garden and pleasure grounds for the purpose. The borders on either side of the central walk through the kitchen is a favourite place for it. A few of the most suitable subjects for planting at the present time are Dahlias, Scabious, Asters (especially the single Chinese sorts), Stocks, Zinnias, Sweet Sultans, early-flowering Chrysanthemums, annual Gaillardias, Coreopsis, and Helichrysums. For the same purpose make another sowing of Sweet Peas and Mignonette.

GENERAL SUBJECTS.—Pick the seed-pods off Violas, or these will mature and curtail considerably the flowering of the plants. The long grass in the pleasure grounds where the Daffodils are naturalised may now be mown. Attend to the climbers on walls, arches, and pergolas, training and tying them as required before they get out of hand.—A. O., Kew, Surrey.

The Kitchen Garden.

WINTER CROPS.—No time should now be lost before getting the main crop of winter greens, Broccoli, and Cauliflowers, and such-like plants into their permanent quarters. As the early Peas and Potatoes are cleared the quarters should at once be filled with such plants as are required for autumn, winter, and spring use. Needless to say, showery weather is the best for such work, and the soil should be rich for autumn Cauliflowers.

COLEWORTS AND CHRISTMAS CABBAGES.—Sow these most useful winter Cabbages. Both of them withstand severe frost well, and are always most valuable for Christmas. It is a great thing to be able to cut good useful Cabbages in severe weather, and this can be done if the two above mentioned are sown now, and planted rather close together later on.

MULCHING CROPS.—Labour is well spent on mulching crops at the present season. It saves an enormous amount of watering, and keeps the crops moving freely. If the crops could receive a thorough soaking of liquid manure before the mulching is placed on the soil, a great improvement would accrue.

ENDIVE AND LETTUCES.—A sowing of these should be made. The soil on which the Lettuces are to be planted cannot well be too rich. They thrive best in what is practically a manure heap, especially if stable manure is used. In hot weather these crops cause a lot of labour with the water-can.

BETROOTS.—These have been eaten very much by slugs and other insects, and will, in consequence, be a thin crop in some gardens. They, however, transplant well, therefore if the plants are lifted carefully when thinning, the vacant places can be filled with every hope of a good crop of serviceable roots. The plants will need a little water on warm days until established.

SEAKALE AND RHUBARB.—The flowering heads ought to be removed as fast as they appear, as they greatly weaken the plants. The soil between the rows of those plants which have been forced where they are growing may be lightly forked up, and a little artificial manure sprinkled on the soil, to be washed in by the rains.

BROAD BEANS.—Where these are appreciated late in the season a planting can at once be made. It is a little late for some of the long-pod varieties, and I should prefer a quick growing kind of the Windsor type. Broad Beans do not set well after the nights become longer and colder. The hoe should be kept at work constantly. It will save a great deal of watering.—A. T., Cirencester.

Fungicides, Insecticides, and Spraying.

The Massachusetts Agricultural Experiment Station has recently issued Bulletin No. 123, Fungicides, Insecticides, and Spraying Directions, giving formulas for the preparation of fungicides and insecticides with directions for preventing and controlling fungous diseases and insects. Serious injury from these causes is now so common that the plain directions given in this bulletin should prove of much value. This bulletin discusses not only the common crops of the field and garden, but shade trees as well. It includes also a brief article on the methods to be adopted for the destruction of weeds in mowings, cultivated fields, tennis court and walks.



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ADDRESS WANTED (W. H. B.).—We have no knowledge of the Mr. Green you mention.

WATERING HARDY FERNS (E. M.).—It is not only desirable but necessary to water out-door ferns during dry weather after growth commences. To grow them well the soil should never be allowed to become dry; sprinkling overhead is very beneficial. Rain water is the best, but hard pump water will do if exposed to the air in a tub for a few days prior to using it. By having a tub in the most convenient place, and refilling it after watering, you will always have water ready for use when required. Soapy water will not do, though a weak solution might not cause immediate mischief, yet it is better not to use it, otherwise the more delicate kinds will suffer in consequence.

PRUNING APPLE TREES LATE IN THE SPRING (P. Bull).—It would certainly have been better had you pruned your young Apple trees before they commenced growing, but you may do so yet to a limited degree, so as to give them the shape you wish them to take; but if your trees were only planted in the past winter, it is quite as well to let them alone for the first year, and next winter to prune in rather severely. It is considered bad practice to closely prune in a young tree newly planted, as it tends to encourage suckers from the stock; but an old tree, with its roots necessarily much reduced by transplanting, may have its head cut-in in proportion. If, therefore, your trees are young, you had better let them alone for the present summer, and cut-in as you like when the leaves have fallen in autumn.

GREEN FLY ON PEACH TREES (A Subscriber, B. Stoke).—Syringe your Peach trees every other day with tobacco water for a week or so. This should be done early in the morning, or after three in the afternoon. You may always syringe the trees with perfect safety as soon as the fruit is set, providing the tobacco water is not too strong. Use it at the rate of 1lb of tobacco to eight gallons of water. If you syringe your trees, say on Monday, Wednesday, and Friday with tobacco water, syringing them on the other three days with clear water. If this is well done we think the trees should be quite clear from these pests in one week. Your plan of dusting the Gooseberry trees is very good, and we often adopt it with good success. We do not think it would have the desired effect on the Peach trees. We do not think the dust would injure either the tree or the fruit. There will be no harm in trying it; if it does no good it can be easily washed off again with the syringe.

CAMELLIA LEAVES SPOTTED (J. H. B.).—We think your plants are not in good health, and probably require fresh soil. We should repot them, using a compost of equal parts of turfy loam and peat, with a liberal admixture of silver sand and charcoal. If you can secure active root-action and allow the plants to make their growth in a shaded place, healthy unspotted foliage will be produced. Before potting, carefully remove all of the old soil you can with a pointed stick, not injuring the roots. Afterwards water the plants liberally and syringe them freely until their buds are formed, then cease the syringing, but they must not become dry at the roots at any time. If the roots are active and still the plants appear stunted in growth, cut them down early in the spring and place them in a brisk moist heat, and healthy growth will proceed from every portion of the old wood. By this plan you sacrifice flowers for one season, but you will be well compensated by the increased vigour of the plants and finer blooms in after years. Shade and copious supplies of water are essential in the cultivation of Camellias. We suspect that your plants have had too little water and too much sun.

MILDEW AND RED SPIDER ON ROSES (M. R.).—If you syringe your Roses with soft-soap water occasionally, made by dissolving 2oz of soap in a gallon of water, it will benefit your trees. Frequent syringings with clear water will keep the foliage free from red spider; apply liquid manure also to the roots.

GERANIUMS IN RICH SOIL (F. C.).—We think you have added by far too much manure; so much, in fact, that the plants not only refuse to root into it, but those already existing are destroyed. As the leaves flag, and copious waterings only aggravate the evil, your best plan would be to take up the plants, remove the soil, and replant in loam from rotted turves if you have it—if not, in good rather light loam. The rich soil will do very well for top-dressing the beds of Calceolarias, Roses, &c. Turfy loam with a little leaf mould is most suitable for "Geraniums." In rich soil they go too much to growth, whilst in that which is very rich they will not grow at all, or only for a brief period, and then go off just when they ought to be growing freely. One-fourth of well-rotted manure is as much as can be given along with loam to "Geraniums" with advantage. More may give vigour, but at the expense of the bloom.

TAKING UP CROCUSES—REMOVING POLYANTHUSES (J.).—Crocuses are best left in the ground all the year, and only need taking up every three years or so to divide the roots, planting again the same day. They bloom better when not taken up. The Polyanthuses should now have a rather shady and cool border, one shaded from the midday sun, and if they have this with a moist soil they need not be removed, unless the roots are large, when it may be desirable to divide them. Plant on an east border, or where they can have the morning and evening sun with protection from the burning heat of the sun from 10 a.m. to 4 p.m. A little fresh mould placed around the crowns will be of service in preserving the roots from drought, and during very dry weather the plants should be sprinkled with water in the evening—that is, if you do not move them. A little sand placed between the plants up to the crowns is very good at this season. Keep cool and moist.

NAMES OF PLANTS.—Correspondents whose queries are unanswered in the present issue are respectfully requested to consult the following number. (O. S.).—*Lonicera hispidula*. (Leigh).—*Hedysarum coronarium*. (T. T. T.).—*Kalmia latifolia*. (O. W.).—1, *Clinanthus puniceus*; 2, *Eriophorum angustifolium*.



Supering and Management.

Those who have not already put supers on should (providing their colonies are of sufficient strength numerically, and the body box is full of brood in all stages) put them on at once. Of course, if stocks are, as in some cases it is possible, still weak, supering will be detrimental, as the additional space given will cause loss of heat. After supering bees should work doubly hard, so that if they congregate in the supers without working they should be distrusted, as they evidently intend to swarm when suitable occasion arises. This is sometimes brought about by colonies having too much honey sealed in the brood nest, which prevents the queen laying eggs in sufficient numbers to satisfy them, and she is consequently cramped for room. In bar-frame hives the proper course is to extract the honey and replace the frames when empty. The cleaning out of the empty cells, wet with honey, stimulates the queen to greater laying, and she fills the comb with eggs. Storifying is a good plan where all strengths of colonies are to be had, and if full colonies are treated in the manner suggested the results will be better; but, say, select one good stock, and two which are too weak to gather honey if left alone, and shake from their brood combs the two latter, putting the frames in a second deep chamber placed above the good stock as a super, with queen-excluder between. The bees shaken off their bars are treated as swarms on their old stands, and fresh frames given them in order to enable them to build up again, and the feeder kept going, when they rapidly make up the loss of their brood. This method of doubling secures an immense population, made up of two stocks which would have done little or nothing left separate, and the strong stock, instead of having a shallow super put over the queen-excluder, has an extra large one, which they are able to take care of, and the brood hatches in due course, liberating the cells, which are in turn filled with honey, the bees being very quick to take advantage of the space and complete all the filling of the cells, which is one of their natural instincts, to complete the super. The hive if furnished with a vigorous young queen and a good population to provide the income, she will keep pace with the death rate, and maintain the number of inhabitants, and should produce in a moderate season at least 200lb of honey.—E. E.



Year-Book of Agriculture.

The volume of the above, for 1908-9, has been put in our hands by the publishers, Messrs. Vinton and Co., and after a thorough study of it we cannot only express our great pleasure in possessing it, but can also highly recommend it to everyone who has a sufficient stake in agriculture to warrant the expenditure of five shillings. In many respects it is a sort of farmers' "Whitaker," as it contains almost every kind of statistic and information which a farmer may require.

A very interesting and attractive feature at the end of the volume is the agricultural "Who's Who," being a very long and comprehensive list of persons who are prominently connected with agriculture, with short biographies of each. A study of this list would be interesting to others besides farmers, as its 100 pages contain about 2,000 names, representative of every kind of expert and scientific knowledge, as well as of wealth and high position. We cannot look through it without fully realising the immense reserve force there is behind British agriculture, capable of helping it to weather any storm. It was this force which rescued the Royal Agricultural Society from its difficulties, and put it in the way to achieve greater success than it has ever done in the past.

As regards the general contents of the book, the first chapters give full histories and descriptions of the principal agricultural societies and institutions, beginning with the Board of Agriculture and Fisheries. A full prize list for 1907 is given, with the general information connected with the Royal Agricultural Society and the Smithfield Club.

An alphabetical list of about 700 smaller societies is also published, particulars of which would occupy too much space. These 700 are chiefly agricultural show societies. It is a frequent matter of comment how numerous these small shows have become, but it is surprising to find so many as seven hundred, for the list does not include local horse societies or dairy societies. We should imagine that those 2,000 prominent men mentioned above do a good deal of work in connection with these local shows, and this furnishes more food for reflection on the vitality of British agriculture.

No doubt these small shows do much to encourage the breeding of good stock, and to educate every farmer to be his own judge of what a good animal should be. We knew a farm lad years ago who now has a nice farm, and we have just seen his name as winning second prize for a shire foal at a county show. He was very fond of horses.

One chapter is devoted entirely to horse societies, most of which have each their own annual show. No prize lists are given, but lists of well qualified judges are published, and these will be very useful to the secretaries of small shows for reference when looking for new blood in the way of judging, for local exhibitors grow tired of seeing the same men in the ring year after year. At the end of this chapter is a list of about 120 horse societies, involving a considerable number of shows. Chapters IV. and V. deal with cattle and sheep societies respectively. Seventeen associations, each with its own pure breed to care for, are introduced, with particulars as to their objects, general conditions of membership, and funds, also lists of official judges. The chapter on sheep is of a similar character, and includes no less than twenty-three distinct breeds, each with its own association to safeguard its interests.

Another chapter provides particulars of eight pig societies and associations, after which follow goat societies, dog societies, poultry societies, shows, &c., dairy societies, and arboricultural, horticultural, gardeners', market gardeners', and benevolent societies, the last chapter of Part I. being devoted to a large number of other institutions connected either directly or indirectly with agriculture.

Part II., chapter I., tells us what each county is doing officially for agriculture; how much money is being spent in this way, and in what ways the money is used; what facilities for education in agricultural research are provided, any advantages given to farmers as regards analysis, and a list of the principal shows in each county. An important item included with some counties is a brief statement of the regulations in force as regards movement of animals, and compensation for slaughter of animals affected with, or suspected of, certain deadly diseases.

In part III. we have valuable information on agricultural, horticultural, and veterinary education and research, which includes "Provision by Government Departments," notes on a number of experimental stations, and various agricultural and horticultural colleges. Some of these receive either Government or county assistance, whereas a few, such as the college at Cirencester, do not.

A short time spent with this volume will tell the enquirer almost anything he wishes to know about these institutions, the subjects they teach, and the diplomas which may be won, with the probable cost of residence and fees to complete any one of the different courses which students may take.

Chapter IV. is very important, as it gives full descriptions of the various contagious diseases of animals, and the orders of the Board of Agriculture in connection with them. Those which most interest the average farmer are anthrax, foot-and-mouth disease, glanders, sheep-scab, and swine fever, and it will be worth his while to study carefully the symptoms of these diseases as explained in this book, and also what he may legally do or not do if he suspects that he has a case. It is alarming to find that there were 1,058 outbreaks of anthrax in 1907.

Part V. explains fully the import and export regulations of animals to and from this country; and British, foreign, and Colonial sanitary and fiscal laws and regulations.

In Part VI. we have an immense list of agricultural publications; and in Part VII. is everything that one wants to know about markets, fairs, and sales during the past year, the most valuable portion of the information being the prices, and to see how they vary in different parts of the country and according to the season of the year. A great deal of useful knowledge may be extracted from this chapter. Part VIII. is a long and rather dry mass of statistical, legal, and general information, which we have not tackled very fiercely. It will do for a long evening in winter!

Work on the Home Farm.

We have a continuance of dry weather. We hear with envy of rain in other places; but as we get none, some of the stronger land is too hard to be touched. Nothing is suffering except the late sown barley, which is above ground, but cannot grow. Wheat has immensely improved, and all the early barley and oats look well. There were a few days in February when the land provided a fine seed-bed, and those who took advantage of the opportunity have every reason now to be thankful for their promptitude.

We have not seen any clover cut yet. No doubt it was backward in Spring, and though it has done remarkably well and will be a big crop, it is not yet in flower. It seems a pity to miss this fine weather. There is no better season for hay-making than the latter half of June.

The turnip fly is much in evidence, and the main crop of swedes is suffering severely. We have always been liberal with the seed, and sometimes we have wished afterwards that we had sown less; but this year the survivors from the fly will be none too many, and there will be little thinning to do. How the farmers get a plant who only sow from 1½lb to 2lb per acre we do not know, but very often they may be drilling a second time.

The main crop of white turnips is due to sow. Any time from June 14 to July 1 will do on medium soils; on warm sand July 12 is not too late to sow turnips for Spring use, but we should put it as the last advisable date. White Pomeranian is good for late sowing, as it grows a little faster than Green Globe, and sometimes when Spring comes the smaller turnips may be drawn and sold at a good price for bunching, leaving the larger ones for the sheep.

In connection with sheep, there is still no market for wool. Buyers and sellers are marking time at present. After a while the needy sellers will have to set the price which the buyers dictate, but we fear it will be a very small one. Talking the other day to a sheep-dipper, he expressed the opinion that to be effective sheep should be dipped twice with a short interval. At present only one dipping is compulsory with a certified dip. We entirely agree with him. Having had a bad experience of sheep scab and suffered heavily from it in expense and worry, we write on this subject with special knowledge. Every attack we had was brought by market sheep purchased either by ourselves or neighbours.

Compulsory Spraying.

In every State and in every farming community there is always one man at least who is behind the times, who neglects his trees and lets insect pests and fungus diseases run riot. His neighbours are progressive, up-to-date orchard men or nurserymen. They cultivate the ground, feed the trees and spray for insect pests and fungous diseases. The trees of the easy-going farmer are infested with almost every kind of disease, yet he won't cultivate, he refuses to spray, and he won't cut his trees down. All that he will do is to grumble when his neighbours remonstrate with him. Now, in Oregon, says the "National Nurseryman," if a man fails to spray for San José scale, the authorities do it for him and tax him for the work. This is as it should be.

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Journal of Horticulture.

THURSDAY, JUNE 25, 1908.

Thinning Fruits.

VERY experienced fruit grower knows the value and necessity of thinning fruits when trees are carrying a heavy crop, and the exhibitor is well aware that such knowledge must be promptly acted upon if success is to be achieved. When thinning is necessary the sooner it is done—after the fruits are swelling freely—the better, for it is undoubtedly a wasteful practice to allow them to sap the vigour of trees for a time, only to be eventually removed before they have reached a usable stage.

Another point in favour of early thinning is that unless young fruits make the fullest possible progress during the first stage of swelling, they will never develop into specimens of the finest size. Close attention to details of this description count for so much in the production of high-class fruits. In regard to the thinning of Peaches and Nectarines, I am well aware how greatly practices vary among growers. Many do not believe in completing the thinning until the final stage of stoning is passed, because they contend that many of the fruits will assuredly drop during the stoning period. I am convinced, however, that given healthy trees, well attended to in regard to watering and the application of lime, the principal cause of fruit dropping at stoning time is that the trees are carrying too heavy a load, and Nature attempts, to some extent, to restore the balance. The most successful Peach growers I have known have invariably completed the thinning of the fruits as soon as it has been possible to detect which would swell the more evenly.

In making the selection due regard should also be paid to having the fruits retained distributed as evenly as possible over the trellis or wall, in positions where they can obtain the greatest amount of light, and where there are no obstructions to prevent the fruits from

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No. 1461.—VOL. LVI., THIRD SERIES.

swelling evenly. One Peach to every square foot of wall covered with healthy growth is a safe rule to adhere to where fine specimens are required, but those who do not soar above the production of medium sized specimens may succeed by cropping their trees more heavily. If each Nectarine is allowed a space of nine inches square fine specimens will be produced, and to grow Apriots of the highest excellence one fruit only should be allowed to a space of six inches square. It is no unusual occurrence to find trees of this delicious and prolific fruit carrying very much heavier crops than this, but under such circumstances the fruits do not attain full size, and the trees as a consequence of such heavy cropping fail to fruit well the following year, and often lose some of their branches.

Now let me turn to other and more generally grown fruits. The recent genial rains came at an opportune time for growers, as insect pests were giving great trouble, and crops were not swelling freely through lack of moisture. Since the rain matters have, however, considerably improved, and vegetation generally is now making better progress. No matter how good the prospects for fruit may be, there always appears to be some districts in which growers complain of its scarcity, but I have had ocular demonstration of the necessity of thinning in many of the plantations recently visited. Indeed, in regard to Apples there will, I fear, be but little to be said in regard to the quality of the fruits, unless thinning is in many cases resorted to. It is on this point that the grower of bush trees has an opportunity of scoring. To thin the fruits on standard trees is a troublesome and expensive business, but the man with bushes kept to within a height of 8ft or 9ft can do the work rapidly and effectually. That it pays for doing I know well from annual experience, and I believe strongly in doing the work now, instead of waiting till the fruits are large enough to send to market in a green state. The grower who is looking for profit should, as far as possible, "grade" his fruits by thinning them while young, and for those who will do this there is a bright future.

The following varieties are some of the heaviest croppers, which, therefore, require severe thinning:—Stirling Castle, Lane's Prince Albert, Early Victoria, Lord Grosvenor, Toddington Seedling, Ecklinville, Allington Pippin. We have recently been dealing with trees of these on which the fruit has set almost as thickly as Peas in a pod. Generally these varieties set in clusters, and in many instances nearly every fruit in a cluster swells evenly. On a well spurred branch it is useless to expect good samples if more than one young fruit is left to a cluster, and often an entire cluster needs removal. In other instances, where the clusters are farther apart, two or three fruits may be left to a cluster. The operator should constantly bear in mind the size the fruits will under good cultivation attain, and thin accordingly; as with healthy trees there is no danger of the fruits falling prematurely when they have begun to swell freely, unless through exceptionally unfavourable weather, and then the heaviest cropped trees will suffer the most. Warner's King is another cluster bearer, and if too many fruits are left to a cluster they are apt to force each other off the trees long before they are ready for picking.

Peasgood's is not one of the most regular croppers, but when it does crop the fruits require severe thinning. To get the splendid specimens this variety is capable of producing, not more than one fruit should be left to each foot run of branch. "The Queen" as a rule distributes her fruits fairly evenly over the tree, and therefore requires less thinning than many other varieties, but occasionally clusters need attention. Cox's Orange Pippin, although a very consistent cropper, does not usually produce very heavy crops, for although from four to six fruits often set in a cluster, several of them usually drop later, or are under-sized. The stalks, moreover, being long allow the fruits to swell without pushing each other off the tree. Where thinning is necessary, the under-sized and ill-formed fruits should be removed and the large clusters thinned. I have recently seen trees of this variety carrying splendid crops. Varieties noted for their high colour (with the exception of those which produce only small fruit) should have only the most promising fruit in each cluster retained, so as to ensure full exposure on all sides.

In regard to Plums, those on walls, or bush trees, should be freely thinned where a good set has been obtained. A beginning in this direction will do much to demonstrate the advantages of the practice, and lead to its extension to the large fruited varieties when grown in standard form.—ONWARD.

What is the cause of the great and glorious change which restores to vegetation its suspended vitality? Under the invigorating action of Spring air, sunshine, and showers, the minute root-tips, situated at the hair-like extremities of the roots of plants, are excited to renewed activity, resulting in an accelerated and augmented flow of crude sap upward into the tissues. At the height of the grow-

ing season, when plants are carrying their full complement of foliage, this crude sap would make its way through the newest layers of wood into the leaves, there to undergo a remarkable chemical change rendering it fit to nourish and build up the particular organism by which it has been absorbed. When Spring arouses the natural energy of the plant world after its period of rest, a great number of trees and shrubs are, however, destitute of foliage, and the question as to how the imperfect sap is elaborated in these circumstances is seldom commented upon, and is, I think, not completely understood. It can, of course, be easily demonstrated that, in suitable environments, a dormant bud has enough nourishment at its command to enable it to expand and commence growth independent of parental aid; nevertheless, the fact remains that the health of the plant to which it belongs must require some perfecting process for the soil-fluids taken up by the roots, before the leaves begin to exercise their function. It seems rational to believe that the woody layers through which the Spring sap ascends are capable of temporarily performing the purifying work afterwards carried on by the foliage. By whatever means the difficulty is surmounted, a notable adaptability to adverse conditions is apparent, which may carry back the mind of the imaginative student to that far-away day when the progenitors of the forest kings unfurled no leafy banners to the summer air.

Sap in its simplest form, as it passes through the absorbing roots, consists of the moisture from the soil which contains certain earthy elements. Soil-water is never pure. In its passage through the earth it collects and holds in solution lime, iron, magnesia, and other saline and organic matter, which in this form are readily taken up as plant-food by roots. Soon after the fluid nutriment has been absorbed it undergoes the chemical metamorphosis which changes it into sap proper, i.e., the peculiar secretion which constitutes the vital juice of the particular plant which elaborates it. The point at which this change begins has not been discovered with precision. It is said that the natives of the Canary Islands obtain a refreshing drink from a species of Euphorbia, by tapping the stem near the base and collecting the ascending sap, although the elaborated juice of this plant is thick and milky, possessing highly corrosive and acrid properties. It has been proved by analysis, however, that the crude sap of trees becomes less watery and assumes some characteristics of the true sap in its passage through the woody cells before coming under the influence of the leaves. During the growing season the roots of plants sometimes range over a tremendous area in their search for moisture to be converted into sap, as at this time they endeavour to lay up reserve to meet the great demands of flower and seed production. To come through the rigorous ordeal of perfecting fruit or seed without deterioration, a plant must be in vigorous health and have abundance of fluid nutriment at its command. The severe drain of sap caused by seed-bearing encompasses the death of annuals, and the shrunken and dried-up root of a flowering Turnip furnishes another familiar example of extreme exhaustion of the vital juices during this trying period. By systematically removing the growing points of shoots, thus retarding the time of blooming, some plants may be forced to conserve their supply of sap until they attain an age and size impossible in a state of Nature.—J. E. S.

The publication of the report of the examiners in horticulture, Professor Henslow and Mr. James Douglas, is another of the notable annual events which strike the imagination and remind us of the rapid revolution of the seasons.

R.H.S. Examination. It is pleasant to see that they note a continuous advance in the quality of the candidates. It was on April 8, 1909, that the annual examination in the Principles and Practice of Horticulture was held. Of the 151 candidates twenty-seven, or upwards of eighteen per cent. of the whole number, were placed in the first class. Sixty-eight, or nearly forty-six per cent., were placed in the second class. Fifty-two, or upwards of thirty-four per cent., were placed in the third class. The corresponding percentages in 1907 were: First class, 14; second class, 40; and third class, 46.

Of the questions on the Principles, by far the majority almost confined themselves to the first three questions on physiology. In the majority of cases these were answered very well. Other questions attempted were generally rather imperfectly treated. Although none of the candidates obtained the highest number of marks obtainable in the Operations and Practice division, the answers were, generally speaking, better than in any previous year. The question referring to the uses of garden tools, &c., was most frequently and well answered; so also was that referring to the laying out of a new garden, and the preliminary work pertaining thereto.

This is the fifteenth year since the commencement of the examinations in 1893, and the society now publishes in book form the whole of the questions set during that period, which can be obtained at the Horticultural Hall, Vincent Square, Westminster, for two shillings.



Odontioda Charlesworthi.

This was regarded as one of the finest novelties at the Temple Show. It was exhibited by Messrs. Charlesworth and Co., Heaton, Bradford, who received a first class certificate. The flowers are over 2in deep, and as broad as deep, being of stiffish substance, graceful in form, and coloured bright crimson-scarlet, with a gold crest on the lip. The parentage was *Cochlioda Noetzeliana* and *Odontoglossum Harryanum*, the colouring of the latter being quite overcome.

Dendrobium thyrsiflorum and its Allies.

This group comprises several well-known species, such as *D. thyrsiflorum*, *chrysotoxum*, *densiflorum*, and *suauiusculum*, which is really a synonym of *chrysotoxum*. The flowers are produced in pendulous trusses, and when well cultivated they respond with a fine crop of blossom, for it is nothing unusual to meet specimens bearing from twenty to thirty sprays. They generally bloom about May, and sometimes later, after undergoing a long cool rest, with very little water either at the roots or in the atmosphere. The scapes having been removed, they still remain in a dormant condition for a few weeks; but when new growth begins the repotting must take place if required. This section of the *Dendrobium*, however, ought not to be disturbed more frequently than is absolutely necessary, because to secure the maximum amount of flower the pseudo-bulbs must be thoroughly ripened; and when we take into consideration the long period of repose and the short interval in which they complete their season's growth, so much compost is not needed.

Teak wood baskets or ordinary flower pots may be chosen, but I prefer the former (culturally there is no difference), as we gain a decided advantage if a wire handle is attached to suspend the plants when in flower. By this means their beauty is doubly enhanced. The potting mixture consists of fibrous peat or polypodium fibre three-fourths, and sphagnum moss one-fourth, which should be pressed fairly firm around the roots. For drainage dried peat sticks are suitable, and after potting operations are over water should be given sparingly for a few weeks, and extra shade applied to enable them to get re-established. If these details are carried out there will be no need for root disturbance during the next three years. While in active growth plenty of heat and moisture must be provided, such as prevails in the warm division or plant stove, with sufficient light to ensure the consolidation of the bulbs; and when these are fully grown more sunshine can be admitted to prepare them for the approaching winter, when the temperature should range between 50deg and 55deg F. The subjects under notice are not difficult to cultivate, and for a modest outlay a small collection could be secured.

Calanthes.

These useful autumn and winter flowering orchids are now growing freely, and where space was left for top-dressing it may now be taken in hand, good fibrous loam being the best soil for this purpose. There must be no lack of moisture at the root, and a little top ventilation whenever the weather is favourable will prove beneficial, and help to hold in check any spotting of the foliage. Shading should be provided discriminately, or the leaves may be injured by the sun's direct rays; while if the other extreme is practised the pseudo-bulbs often rot at the base or fail to produce spikes of good quality.

Vanda teres.

The time has now arrived for the annual overhauling of these plants. It consists of tying them securely to unpainted stakes, and placing new sphagnum with occasional lumps of charcoal around their base. A small quantity of plants can be arranged pot thick in a box, and given a position where all the sunshine possible can be obtained; and they must also be syringed four or five times each day.—T. ANSTISS.

Ptelea trifoliata aurea.

The green form of *Ptelea trifoliata* is a more or less common American shrub, being found in quantity along the shores of Lake Michigan in Illinois. It has rather a rambling and untidy habit naturally, but when cut into shape a little and looked after it makes a very pretty little shrub, as seen by an illustration of the golden form of it in "Gardening" (Chicago). *Ptelea* is a genus containing about five or six species, and all are easily grown in ordinary garden soil. The above is certainly worthy a place in any garden.

Royal Horticultural Society.

TUESDAY, JUNE 23.

The Royal Horticultural Society entertained a large company of French horticulturists and their ladies, on Tuesday, to luncheon. A party of the members of the National Horticultural Society of France, which occupies in that country the position of our R.H.S. in England, with all the leading officials, are on a short visit to London in connection with the flower show at the Franco-British Exhibition; and they arrived on Monday evening. The R.H.S. welcomed them to the exhibition at the hall the following day, and besides the Franco-British Exhibition, the Frenchmen were also to visit Messrs. Veitch's Coombe Wood nursery, and Messrs. Rochford's at Broxbourne, and also the Royal Gardens, Windsor. A dozen members were present at the dinner of the Gardeners' Royal Benevolent Institution last night (Wednesday), and the president (Monsieur Viger) replied to the toast of "Continental Horticulture."

Fruit and Vegetable Committee.

Present: Mr. George Bunyard (in the chair); with Messrs. Joseph Cheal, W. Bates, H. Parr, G. Reynolds, Geo. Wythes, J. McIndoe, Owen Thomas, W. Poupert, A. H. Pearson, A. R. Allan, J. Davis, and P. D. Tuckett.

S. H. King, Esq., Eastwell Park, Ashford, Kent, staged a collection of nine bunches of dark Grapes and five of whites, the bunches very good. (Silver Knightian medal.)

From the Government Experiment Farm of Bathurst, New



Odontioda Charlesworthi.

South Wales, came a collection of Apples and Citruses. The Apples were ideal, crisp and juicy. A silver Knightian medal was deservedly awarded. Messrs. Dobbie and Co. also won a silver Knightian for a remarkably fine display of new Potatoes with full-sized tubers, firm and clear. These were from sets planted on the 3rd of February this year in Cornwall. Among the varieties were Eighty-fold, Sir John Llewelyn, Russett, Cardinal, Eureka, Southern Queen, Sharpe's Victor, Radium, and Beauty of Hebron. Mr. Arthur W. Sutton showed plants of the wild Pea (*Pisum*) gathered by himself in Palestine. Messrs. J. Veitch and Sons had Nantes Market Carrot, Lamblin Cauliflower, with immense curds, and Cabbages Oxheart.

Orchid Committee.

The signature book of this committee is usually cleared away very soon after the committee rises. On this occasion we failed to get it. There were but few groups. Messrs. Low had a display, and also Messrs. Charlesworth, of Bradford (silver Flora medal), and Messrs. Stanley, of Southgate (silver Banksian medal), but the growers are evidently saving for Holland House Show. Mr. de Barri Crawshaw showed his hybrid *Odontoglossum*. (Silver Flora medal.)

Floral Committee.

Present: Mr. H. B. May (in the chair); with Messrs. Chas. T. Druery, W. A. Bilney, Jas. Hudson, John Green, G. Reuthe, C. Blick, R. W. Wallace, John Jennings, Chas. Dixon, Jas. Douglas, Chas. E. Pearson, J. W. Barr, Wm. Cuthbertson, Herbert J. Cutbush, E. H. Jenkins, R. C. Notcutt, E. A. Bowles, Walter T. Ware, R. Hooper Pearson, and R. C. Reginald Nevill. Messrs. Barr and Sons, of King Street, Covent Garden, had

Irises, Gladioli, and Pæonies. They also staged the pretty grass, *Miscanthus zebrinus*, *Centaurea dealbata*, *Phlox viscosa*, Delphiniums, and Nymphaeas. (Silver Banksian medal.)

Spanish Irises came from Messrs. Dobbie and Co., in great bunches of fresh flowers. We specially noted *Soleil d'Or*, *Chrysolora*, *La Citronniere*, King of Whites, Longfellow, and Thunderbolt. (Silver Banksian medal.)

A very pretty exhibit also came from Mr. Amos Perry, Enfield, Middlesex, whose new nursery, we learn, is a very attractive and interesting one. They had a beautiful selection of Nymphaeas in a long, wide, shallow tank, with suitable rock and water plants. Among the Water Lilies were *N. odorata gigantea*, *chromatella*, *Laydekeri* purpurea, *Marliacea rosea*, and the beautiful large flowered *James Brydon*. Other plants were *Arundo Donax* variegata, *Cypripedium spectabile*, *Gerbera Jamesoni*, *Ostrowia magnifica*, *Lilium rubellum*, *Watsonia Ardernei*, *Lilium parvum luteum*, *L. p. hybrida*, *L. tenuifolium*, *L. colchicum*, *Eremurus hybridus* (Bungei x robustus), together with a large collection of seasonable border flowers, particularly Delphiniums. (Silver-gilt Flora medal.)

Mr. James Douglas, from Edenside, Great Bookham, Surrey, staged nearly a table length of laced Pinks, grown in pots for seed. There were many named varieties, some of them quite distinct, and all had the merit of sweet fragrance. They are interesting border plants, and very floriferous.

The Guildford Hardy Plant Co. contributed *Sempervivum* and *Sedums*, among the former being *cornutum*, *arachnoideum rubrum*, *Corni de Canso*, *Wulfeni*, *fimbriatum*, and *globiferum*. The *Sedums* were *populifolium*, *dasyphyllum glaucum*, *Kamskaticum*, *rupestre*, *spathulatum*, *maximum purpureum*, *rubrum*, and *telephoides*.

Messrs. James Veitch and Sons, Ltd., Chelsea, S.W., had an immense quantity of herbaceous Pæonies, together with Delphiniums, *Eremuri*, and Canterbury Bells. *Eremurus Bungei magnifica* (A.M.) and *E. Warei* were each strikingly robust and fine. The Pæonies were in a wide selection of shades.

G. Ferguson, Esq., The Hollies, Weybridge, sent a selection of choice new Delphiniums, *Cambyses*, rich blue with white centre, obtaining an A.M. There were many distinctly good sorts. Messrs. Kelway and Son also had Delphiniums and Pæonies, similar in variety to those elsewhere named in our columns.

Messrs. Bakers, of Wolverhampton, brought *Papaver Lady Roscoe* and others of the newer orientale varieties. *Achillea W. B. Child*, a showy free-flowering variety; also *Aquilegia*, *Pyrethrum Mont Blanc*, a good white; *Cheiranthus Allioni*, *Lupinus polyphyllus albus*, very fine, and the new *Gaillardia Lady Rolleston*, with large rich golden flowers. They also had *Violas* and alpine. (Silver Banksian medal.)

Messrs. Cutbush had a very excellent assortment of greenhouse flowering plants with Carnations, while Messrs. Wallace, of Colchester, contributed hardy flowers and their new cross-bred *Heucheras*—*Orlando*, *Margaret*, *Touchstone*, *Pink Pearl*, and *Micrantha rosea elegans*, both firms winning a silver-gilt Banksian medal. Messrs. H. B. May staged a table of *Crotons* for which a silver-gilt Flora medal was awarded; and Messrs. James Veitch and Sons won a similar medal for their group, comprising Veitch's Superb strain of *Gloxinias* (very fine), also a group of annuals and the Pæonies already mentioned. Among the annuals were *Diascea Barbery*, various *Candytufts*, *Lavatera trimestris alba*, and *Larkspur Empress Carmine*; also a table of Spanish Irises. Messrs. Cannell and Sons, Swanley, had a display of *Gloxinias*, representing a choice strain. (Silver Banksian medal.)

Roses came from a number of firms. Mr. Geo. Mount, as usual, had a grand lot, showing some of the fine old dark h.p.'s, very fragrant; also a mass of the new *Joseph Lowe*. (Silver Flora medal.) Messrs. Paul and Son, Cheshunt, had *Gottfried Keller*, the new large carmine-yellow single; also *Buttercup*, soft buff going off white; and *Starlight*, white and pink, each of which are decorative singles. *Marquise de Sinety* is a golden h.t. (Silver Flora medal.) Messrs. Ben Cant and Sons, Colchester, had new Roses, as *Hugo Roller*, *Sulphurea*, *Edu Meyer* (coppery), *Etoile de France* (crimson), *Betty*, *Souv. de Stella Gray* (after the colour of W. A. Richardson), and their semi-double crimson *Maharajah*. (Silver Banksian medal.)

Messrs. Wm. Paul and Son, Waltham Cross, had *Elaine*, the new creamy white h.t.; *Hugo Roller*, one of their finest introductions; and a splendid new decorative hybrid Sweet Briar called *Refulgence*, described under "Certificated Plants." Mr. R. Neal, Ifield, Crawley, had Sweet Peas, and Messrs. Bull and Sons staged Irises; while a table length of excellent *Malmaisons* in pots came from Hugh Low and Co. (Silver Banksian medal.)

Caladiums were arranged by Messrs. John Laing and Sons, Forest Hill, the plants being well grown. (Silver Banksian medal.) Mr. Godfrey, from Exmouth, was represented by decorative *Pelargoniums*, among which we observed such beautiful kinds as *Lady Decies*, soft rose; *Bridesmaid*, white; *Queen Maud*, rose carmine; and the excellent double pink *Ivy-leaved Devonshire Lass*. (Silver Banksian medal.)

Dr. H. A. Martin (gardener, Mr. O. Johnson), Surbiton, had some slaty blue flowered *Hydrangeas* with immense heads of bloom.

Messrs. Ware, of Feltham, were to the fore with Pæonies, *Delphinium Polar Star* (creamy), and *D. Mark Twain*, a grand bright blue. Their best Pæonies were *alba superba* and *Eugène Verdier*. From John Peed and Son came alpine plants.

Messrs. Wm. Wood and Sons, Ltd., Wood Green, London, N., brought an assortment of their horticultural sundries, among which were watering cans, brushes, fruit boxes, nets, pruning knives and secateurs, hose-piping, raffia, tiffany and other shadings, their "Le Fruitier" fertiliser, knapsack sprayers, and fumigators.

The Lubrose paints were shown by the Lubrose Company, Moorgate Station Chambers, London, E.C.

Certificates and Awards of Merit.

Anthurium President Viger (A. Truffant, Versailles).—Large rich crimson spathe, with yellow spadix.

Begonia Col. Laussedat (J. Veitch and Sons, Ltd.).—A dwarf bedding *Begonia* with rich, yet soft yellow, rosette, double flowers. A.M.

Bulbophyllum fusco-purpureum (Sir Trevor Lawrence, Bart.).—Drooping, small, dark crimson flowers. B.C.

Campanula Raddeana (G. Reuth).—A new Russian species, 1ft high, erect, with graceful slender stalks, and the violet-blue flowers branching alternately from the main stem. These are 1in long and bell shaped. The pistil is bright yellow and protrudes below the corolla. A.M.

Delphinium Cambyses (Geo. Ferguson, Esq., Weybridge).—A stately, large flowered, dazzling bright azure blue, with white centre. A.M.

Dendrobium Jerdonianum (Sir Trevor Lawrence, Bart.).—Small rich orange-ochre flowers, 1in in width, with very narrow, linear segments. These are borne thickly at the apex of the pseudo-bulbs. A.M.

Epidendrum virescens (Sir Trevor Lawrence, Bart.).—This was shown as a free-flowering, branching species, with green flowers having a creamy lip. The inflorescence was 4ft long and much branched, having scores of flowers. A.M.

Eremurus Bungei magnifica (J. Veitch and Sons).—A chance seedling from E. Warei, having the yellow flowers of *Bungei* with the robust character of *E. robustus*. Spikes, 2ft or more in length. A.M.

Erica cinerea pygmaea (Mr. G. Reuth, Keston, Kent).—A dwarf, close-growing, bright crimson-flowered variety of the so-called Scotch Heath. A.M.

Eschscholtzia Mikado (Mr. W. H. Gardiner).—Flowers of the usual size and style, coloured brilliant crimson. A.M.

Eulophia nuda (Sir Trevor Lawrence, Bart.).—Flowers with narrow green segments and white lip, set alternately on an upright stem. B.C.

Lycaste tetragona (Charlesworth and Co.).—The curious vase-shaped flowers are greenish-brown, with purple lip, which, however, shows the reverse side. They are borne on short stalks 3in high. A.M.

Odontioda Wickhamensis (G. W. Bird, Esq., Manor House, West Wickham).—Parentage: *Odonto. crispum* x *Cochlioda sanguinea*. Flowers rather ragged and poor, of a rosy mauve, spotted crimson. A.M.

Odontoglossum crispum Princess of Wales (Baron Schröder).—A huge flower, 4in across, with thick petals, fringed and indented, shaded mauve on the lower segments. The crest is yellow, and the lip is spotted with brown. F.C.C. and Silver Medal.

Pelargonium James T. Hamilton (Messrs. Rogers, Southampton).—An Ivy-leaved zonal cross, with the characteristic foliage of that section, and large, finely formed trusses of scarlet double flowers. A.M.

Phalænopsis Lindenii (Charlesworth and Co.).—Very pretty, with drooping raceme, mauve coloured. B.C.

Rose Refulgence (Wm. Paul and Son, Waltham Cross).—The name refers to the bright character of the semi-double rich crimson flowers, which are 2in to 3in in width, borne in clusters. This is a hybrid Sweet Briar with great vigour of growth, and sweetly fragrant leaves. A.M.

Stokesia cyanea alba (Amos Perry, Enfield).—The flowers are white, with a blush centre. A.M.

Sweet Pea Dobbie's Mid-blue (Dobbie and Co.).—A handsome waved Sweet Pea, of a decided medium blue, with grey edges. The blossoms are large. A.M.

Sweet Pea The King (Dobbie and Co.).—This is also called the "Spencer King Edward." It would appear to combine the colour of the latter and *Helen Lewis*, being vivid crimson-orange. The flowers are large and waved; a good novelty. A.M.

Tritoma Goldense (E. Wallace and Co., Colchester).—We do not know if this is a hybrid or cross-bred. It is the tiniest of *Tritomas* (*Kniphofias*), with clear yellow flowers, the spikes only measuring 3 in. A.M.

Fandula pumila (J. W. Moore, Ltd.).—Very small flower of a creamy colour and purple lip. B.C.

The Winner of the Neill Prize.

John H. Wilson, D.Sc., F.R.S.E., lecturer in agriculture and rural economy, St. Andrew's University, was, as noted in our columns last week, the recipient from the Royal Caledonian Society of the Neill Prize, which, under the will of the late Dr. Patrick Neill, is biennially conferred. On leaving home he spent a few years in the Royal Botanic Gardens, Edinburgh, enjoying there the confidence of the late Professor Dickson and the friendship of a cultivator and botanist of higher rank, Mr. Robert Lindsay. Laying aside his tools he entered the botany classes of the University, and had the satisfaction of finding himself before long first prizeman in the theoretical and practical classes. He then returned to his native city, St. Andrews, and entered on a course of study for a science degree, and in due time graduated B.Sc. Shortly after graduating he was appointed as the first University lecturer on botany there. To assist him in his work he planned and laid out a small botanic garden in the University grounds.

He now took charge of the Herbarium in the Royal Botanic Gardens, Edinburgh, and having spent some time there he again entered the University, his object being to improve the agricultural side of his education; and in 1900 he was appointed lecturer on agriculture in the University of St. Andrews. Immediately after being appointed he made a journey across the United States to California, returning by Canada. On his return he set about instituting long-delayed experiments in hybridisation of farm plants, and this work has gone on continuously ever since. Dr. Wilson exhibited a number of garden and farm hybrids at the International Exhibition held under the Royal Caledonian Horticultural Society in 1905. The Royal Horticultural Society of London awarded him a Banksian medal in 1899 in recognition of his work as a hybridist.

Among his botanical papers we would name the following:—*The Mucilage Glands of the Plumbaginæ Annals of Botany*, vol. iv. On the adaptation of *Albucca corymbosa* and *Albucca juncifolia* to Insect Fertilisation. (*Trans. Bot. Soc. Edin.*, vol. xvi.). *The Dimorphism of the Flowers of Wachendorfia paniculata*; *ibid.*, vol. xvi. (translation in "*Botanisch Jaarboek*," vol. ii.). *The Leaves and Stipules of Larrea mexicana*, *ibid.*, vol. xix. *Observations on the Fertilisation and Hybridisation of some Species of Albucca*, "*Botanisch Jaarboek*," vol. iii. *Observations on the Flowers, Fruit, and Seedlings of Saintpaulia ionantha*, *ibid.*, vol. x. *Description of a New Species of Albucca (Albucca prolifera, J. H. Wilson)*. "*Gardeners' Chronicle*," vol. xxiii., 3rd series, 1898. *Hybridisation. "American Gardening," 1899 (prize paper). The Structure of Certain New Hybrids.* "*Journal of Royal Horticultural Society*," vol. xxiv. *Observations on the Germination of the Seeds of Crinum Macoivani*, *trans. Bot. Soc. Edin.*, vol. xxi. *Hybridisation, "Memoirs of the Royal Caledonian Horticultural Society," 1905. The Hybridisation of Cereals.* "*Journal of Agricultural Science*," vol. ii., part i., 1907. *Experiments in Crossing Potatoes.* "*Transaction of the Highland and Agricultural Society*," 1907. *The Hybridisation of Plants.* "*Green's Encyclopædia of Agriculture*," vol. ii. *Infertile Hybrids*, report of the Conference on Genetics, Royal Horticultural Society, 1907.

Hardy Plant Notes.

The Cos Cyclamen (Cyclamen Coum).

Among the very earliest flowers of the year is the little Cyclamen known as Cyclamen Coum, or the Cos Cyclamen, or Bleeding Nun. A delightful little hardy flower is this, and one, too, whose colouring is quite unusual in flowers of the season; for it comes in January or February—a period when we have little in the shape of colour except in white, yellow, or blue. The colour of the typical Cyclamen Coum is a deep intense crimson, and it is difficult to convey in words alone the joy this flower gives to the heart of the flower lover when he or she sees the exquisite drooping flowers of this Bleeding Nun rising from the green orbicular leaves of this tiny plant. Of course, those who can only appreciate the great blossoms of the modern indoor Cyclamen are sure to despise the tiny ones of this hardy species, but these smaller flowers have a grace about them which is absent from their more imposing sisters, and it would be a misfortune were the Cos Bleeding Nun so much "improved" that

its blooms would seek to rival in size Cyclamen persicum. Then, unless accompanied by a proportionate addition to its height and to the size of its leaves, it would be ungainly and ungraceful; whereas it is now in entire proportion, and may be said to be perfect in this respect. It is a charming thing, indeed, to see nestling in some cosy corner in the garden, showing its rounded unzoned leaves, and its pendent crimson flowers so delightful and warm looking even amid the snow or rain we so frequently have at the time it flowers. In thus praising the crimson-flowered form of Cyclamen Coum, one is not blind to the beauties of its varieties, but, after all, these are not so welcome in the garden as it is. There are two varieties which are scarcer, but which cannot be called more beautiful. These are Cyclamen Coum album, with white flowers, and C. C. lilacinum, with lilac blossoms. I have all three in my garden, but none charms me so much as that bright, but intense crimson one which is recognised as the type. And to think that such a delightful little flower, like others of the race, should be so much enjoyed by the porcine race that one of the popular names of the Cyclamen is Sowbread. Ah! "to such base uses."

Notwithstanding that Cyclamen Coum comes from the sunny Mediterranean region, although, curiously enough, it is said that it is not found in the Island of Cos, in the Ægean Sea, whence it derives its name, it appears to be quite hardy throughout the greater part of the United Kingdom, always provided



John H. Wilson, D.Sc., F.R.S.E.

that it has reasonable care taken of its requirements. For one thing, it should be grown in a sheltered situation, as I have seen its leaves twisted off by the stormy winds of January and succeeding months, where it was exposed to sweeping gales, with the result that the corms or tubers became weakened, and eventually rotted off. Nor should it be planted in a place too dry in summer, and nowhere does it do better than in the shade of trees, or on the shady side near the base of a rockery. In the latter position it is not spoiled by drip, as might be the case in a wet winter, and such a bright little beauty deserves every consideration shown to its comforts. Then the question of soil may well be studied. One finds that this plant is a lover of lime, and a free soil with some old mortar crushed into small pieces, or some chips of limestone or chalk, well mixed with loam and some leaf soil, will form an ideal compost for this Cyclamen. Another point worthy of consideration is when and how to plant. Frequently it can be purchased in pots, and it can then be turned out of these without check, but if resting corms have been purchased it is safer to plant them partly tilted to one side to prevent rain from lodging in the hollow which is frequently to be found on the top. Some keep the crown almost level with the surface, but I prefer to cover the whole with about an inch of light soil, which forms a protection against excessively severe winters. Its increase is effected by means of seeds, which ought to be sown as soon as ripe if they can be obtained, but seeds purchased in Spring will germinate the following winter as a rule. Purchased corms long out of the ground sometimes fail to start into growth. This bright little flower is deserving of the thought of those who are seeking to add to their gardens the hardy flowers which come long before their neighbours, and form that link between the glories of autumn and the more modest beauties of the Spring.—S. ARNOTT.

NOTES & NOTICES

Death of Mr. W. Neild.

We much regret to announce the death of Mr. William Neild, who passed away on June 15, at the age of fifty-seven years. Mr. Neild was a well-known horticulturist, occasionally contributing to the *Journal of Horticulture*, and was for a number of years horticultural instructor at the college, Holmes Chapel, Cheshire.

The Netherland Horticultural Federation.

At Utrecht, Holland, on May 14, 1908, in a meeting at which all the principal horticultural societies of the Netherlands were represented, the Netherland Horticultural Federation was founded. It comprises some forty-nine societies, belonging to all lines of horticultural activity, and having altogether nearly 18,000 members. This federation will form the central representation of Dutch horticulture.

Hedge Cuttings on Highways.

The Ulverston magistrates, says "The Birmingham Post," have fined a farmer named Wood half-a-crown and costs for having allowed hedge cuttings to remain on the highway to the interruption of persons travelling thereon. It was admitted that thorns were placed on the side of the road, but it was contended for the defence that they were not merely hedge cuttings, as usually understood, but thorns placed to protect crops in the adjoining fields from damage by sheep. Moreover, they were placed on the grassy sides of the road, which, it was submitted, were not part of the highway. The Bench said farmers must clearly understand that they could not deposit thorns on the side of a highway, even on the grassy parts.

An Old Oxford Florist.

We regret to have to announce the death, from senile decay, of Mr. George Salter, who had resided at Summertown for nearly three-fourths of a century. Deceased was formerly a bootmaker, and had a shop in the lower part of St. Aldate's Street. He was the friend and companion of the old school of Oxford florists who, in the "forties," held their periodical shows of Auriculas, Pansies, Polyanthus, Tulips, Pinks, Picotees, and Roses at the "Horse and Jockey," Woodstock Road, "Jolly Farmers," Paradise Street, and the "Cock Pit," Holywell. He was one of the founders of the Chrysanthemum Society in 1863, and a member of that committee during the whole of that period; he was also on the executive of the Royal Oxfordshire Horticultural Society nearly as long. Enthusiastic in his love for flowers, he devoted his spare hours to their cultivation, and at one period was an exhibitor. During the past two or three seasons declining strength prevented him from attending the shows or the committees. Genial and very quiet in manner, he has passed away respected by all who knew him. He leaves a son and two daughters.—("Jackson's Journal.")

Royal Horticultural Society.

The Royal Horticultural Society's fortnightly exhibition of plants was held on June 23 at the Royal Horticultural Hall, Vincent Square, S.W., when the president and council of the society had the pleasure of receiving a deputation of about 100 members of the Société Nationale d'Horticulture de France, and entertained them to a light luncheon. The visitors included the president of their society, Mons. Viger, and Messrs. Lebouf (treasurer), Abel Chatenay (secretary), and Maurice de Vilmorin, of Paris. At the fortnightly general meeting the following were among the new Fellows elected:—Vice-Admiral Sir Francis Bridgeman, the Hon. Mrs. Francis Butler, the Countess of Dalhousie, Lady Dunn, the Viscountess Ennismore, the Hon. Mrs. Ryder, Sir Chas. C. Stevens, K.C., S.I., Lady Lady Hulton, the Countess of Listowel, Capt. R. L. G. Noel, the Hon. Mrs. Ryder, Sir Chas. C. Stevens, K.C., S.I., and Lady Susan Sutton, and about 120 others. A lecture was given by the Rev. Prof. G. Henslow, M.A., F.L.S., V.M.H., on "The Absorption of Rain and Dew by the Green Parts of Plants."

Cabbage Planting Record.

Mr. W. Cole, of Hendall Farm, Groombridge, Sussex, has succeeded in planting 5,000 Cabbages in three hours and ten minutes. In the first hour he planted 2008.—("Evening Standard.")

Birmingham Show.

Our correspondent at Birmingham writes to say that in his report of the recent flower show he omitted to mention that Mr. Joseph Chamberlain, M.P., and Mr. W. W. Butler each were awarded a silver-gilt medal.

Strawberry Frauds.

A cleverly arranged fraud, says "The Daily Express," was perpetrated on a number of unsuspecting persons on Saturday at Covent Garden. Some men had bought several baskets of the fruit, and then converted them into three times as many baskets by the simple process of packing the bottom of each with about three pounds of Cabbage or Cauliflower stalks, covering them with a couple of layers of fine Strawberries. *Caveat emptor.*

Pæonies from Kelway.

We have received a selection of Pæonies from Messrs. Kelway and Son, Langport, in the following varieties: Prince Edward, one of the type with petaloid stamens coloured purple and gold; Sophie Miller, double, purple and white; Queen Victoria, also double, and of the same colours; Summer Day, a very fine white double; and A. J. Hunter, a bright magenta double. Also the following singles:—White Lady, a soft creamy white; Meteor Flight, soft white, touched with mauve; Capt. Peacock, rich deep port wine colour; Lady Gwendoline Cecil, mauve-pink and white; and Lord Napier, claret-carmine.

Certificated Plants at York.

Two certificates, or rather, awards of merit, were accorded by the deputation from the Council of the Royal Horticultural Society, the subjects being:—

Marguerite Pink Queen Alexandra (R. P. Ker and Sons, Liverpool).—This is a beautiful and highly attractive sport from the double, or Anemone-flowered Queen Alexandra, having a pretty pink shading or zone in the disc. It is sure to be greatly sought after.

Nepenthes x excelsa (J. Veitch and Sons, Ltd.).—Parentage: *N. Veitchii* x *N. sanguinea*. Rich, ruddy pitchers, and handsome, mahogany-red rim, the pitchers measuring 12in or so deep. The plant appears to be very vigorous.

Royal Meteorological Society.

The annual dinner of the society was held on Tuesday evening, the 16th instant, at the Trocadero Restaurant, the president, Dr. H. R. Mill, being in the chair. Among those present were Sir Benjamin Stone, M.P., Mr. E. B. Barnard, M.P. (chairman of the Metropolitan Water Board), Captain Muirhead Collins (Agent-General for the Commonwealth of Australia), Dr. J. J. H. Teall, F.R.S. (director of the Geological Survey), Col. R. C. Hellard, C.B. (director of the Ordnance Survey), and Mr. Andrew Watt (secretary of the Scottish Meteorological Society). After the loyal toasts had been duly observed Dr. Theodore Williams proposed the "Visitors," to which Captain Collins and Dr. J. D. McClure responded. Mr. Barnard then proposed the "Royal Meteorological Society." The president in responding referred to the work of the society during the past year, and to the steps which had been taken in connection with the scientific investigation of the upper air, and in creating an interest in the study of meteorology among teachers, with a view to its ultimate inclusion in school work. With the object of promoting a closer union between working meteorologists of the Empire, an Imperial Meteorological Conference was to be held at Ottawa next month, to which he was going as the representative of the society. He also stated that in the furtherance of their wide scheme they received no help from Government, and no recognition in the way of representation on the visiting bodies of such institutions as the Greenwich and Kew Observatories, which were largely devoted to meteorology. They did not complain, but were desirous that the public should not measure their aims and the solid work they were doing by the standard of official recognition. Mr. Baldwin Latham proposed "Kindred Institutions," to which Dr. Teall, Captain Lyons, and Mr. Watt responded.

Rosa Moyesi.

This new species of single-flowered Rose was exhibited by Messrs. James Veitch and Sons, Ltd., Royal Exotic Nursery, Chelsea, S.W., at the meeting of the Royal Horticultural Society on June 9. The growth is upright and spiny, with dark green, pinnate leaves, somewhat like those of *R. spinosissima*. The flowers are borne singly on short spurs. They are single in form, with rusty gold stamens, and coloured old rose—a very taking colour—and are 2in across. An Award of Merit was accorded.

The N.R.S. Metropolitan Exhibition.

This, the leading Rose show of the season, which will be held on Friday, July 3, in the beautiful gardens of the Royal

York Jubilee Gala.

On Wednesday, June 17, and the two following days last week, the jubilee fête of the Grand Yorkshire Gala was celebrated at York. The council has been congratulated on every side upon the remarkably fine show of horticultural products that it induced to be brought into the Bootham Park, and never has such an excellent show of the kind been previously seen at York. It was acknowledged by everyone to be thoroughly high class in all departments—in orchids, fruit, vegetables, hardy plants, groups for effect, and in the non-competitive displays. Three long marquees, which branched at right angles from the lower tent, were utilised, and were admirably lighted in the evening with large arc electric lights. It was quite one of the finest of provincial shows that has ever



The New Chinese Rose, *Rosa Moyesi*.

Botanic Society, Regent's Park, promises to be one of the finest the National Rose Society has held for many years. The previous weather conditions, which, as a rule, mar most Rose shows, are late Spring frosts and a long continuance of cold weather in June. This year both of these conditions have been absent, for seldom has there been so few frosts late in the Spring, while during the present month the cold periods have never lasted more than a day or two; so that the growth of the plants has at no time received any serious check. Among other interesting new features of this exhibition will be competitive groups of the varieties which obtained the first, second, and third places in the recent ballot for the best dwarf and climbing Roses for ordinary garden cultivation.—EDWARD MAWLEY, hon. secretary, N.R.S.

been held, and the two fine days succeeding the wretchedly wet and cold open day, would, we believe, turn the fortunes of the event to a successful issue. Mr. Arey, the courteous secretary, and his committee made perfect arrangements, and carried them through without a hitch. We should imagine that there is no better managed show in any other part of the country.

The schedule had been specially arranged for this jubilee event, and 1,000 guineas were offered in prizes. The first four classes were of a specialistic nature, and called jubilee classes; and the one devoted to rockwork and alpine plants was quite revelatory, and will, we feel certain, be widely copied. York has, in this, certainly scored over Shrewsbury or Wolverhampton, its two great rivals. Messrs. Backhouse's effort was very fine indeed. They utilised huge boulders of Derbyshire

freestone, some of the blocks weighing quite 2 owt.; and these they built into as pretty a rock garden as one could well imagine. An essential of the class was that there should also be a stream or water pool, and this they also worked into their construction with the skill of past masters. Undoubtedly, it must have cost Messrs. Backhouse much hard labour and expense, but to win the proud position of first, with the premier award of all the show, the jubilee gold medal, was quite worth all the pains. They are first class rockery builders, there is no mistake about that. To name all the plants they used would, we find, occupy more space than we can spare, but many beautiful, seasonable subjects were here. The second prize fell to Messrs. Artindale and Son, of Sheffield; and third to Mr. John Wood, Boston Spa. There were two prizewinners beyond this.

But ere we proceed with any regular report of the show, allusion must be made to the bright and cheerful luncheon provided at one o'clock on the opening day. The Royal Horticultural Society was represented by delegates on this occasion, and there were present Sir Trevor Lawrence, Bart., Sir Albert K. Rollit, Rev. W. Wilks, M.A., Messrs. Harry J. Veitch, J. Gurney Fowler, and H. B. May. The Lord Mayor of York presided at the luncheon, and there were also present Lord Wenlock, president of the gala for 1908; the Dean of York, the twenty-four members of the gala council, Viscount Helmsley, M.P., Mr. Hamar Greenwood, M.P., together with the judges and some other friends. Several toasts, of course, were proposed, and were enthusiastically received, for the Yorkshiremen are good listeners, and ever ready with a cheer. The Lord Mayor extended a hearty welcome to the delegates from London, and Sir Trevor Lawrence replied. So highly pleased were the members of the deputation that they awarded five gold medals, fifteen silver cups, nine silver-gilt Flora medals, five silver Flora medals, one Hogg medal, two silver Banksian medals, one silver-gilt Banksian medal, and two awards of merit. In all, the total was forty awards. It required three hours to adjudicate and bestow these honours. Sir Trevor then devoted some time to a review of the history of the Royal Horticultural Society during his twenty-four years' presidency. In conclusion he said how extremely grateful the members of the deputation were to have been invited to, and entertained at, York on this jubilee occasion.

The Dean of York proposed the health of the president and the chairman and vice-chairman of the committee, and in the course of a long speech, remarked that during the twenty-seven years he had known the show and gala, he had never known a regrettable incident or any episode which detracted from its high character. Lord Wenlock replied, and congratulated the committee on having been able to secure such high praise from the president of the Royal Horticultural Society. Alderman Border (chairman of the committee) also responded.

Sir Albert Rollitt, in proposing "The Exhibitors and Judges," complained that they were able to make no awards to, and not even able to "highly commend" the clerk of the weather. (Laughter.) He commended the show as the most truly magnificent they had had the privilege of witnessing, and especially the display of Roses. Mr. G. Paul, Cheshunt, responded.

Mr. Hamar Greenwood, M.P., proposed "Prosperity to the Yorkshire Gala," to which Alderman Foster responded. The toast of "The Visitors," proposed by the Sheriff (Mr. J. H. Turner), was responded to by Lord Helmsley, M.P.

The following were the judges:—Groups, &c., Mr. James Hudson, The Gardens, Gunnersbury House, W., and Mr. C. R. Fielder, North Myms Park, Hatfield; orchids, &c., Mr. W. H. White, gardener to Sir Trevor Lawrence, Dorking, and Mr. H. J. Chapman, The Gardens, Oakwood, Wylam-on-Tyne; Roses, &c., Mr. W. J. Jeffries, The Nurseries, Cirencester, and Mr. G. Paul, Cheshunt, Herts; fruit and vegetables, Mr. T. Challis, Wilton House, Salisbury, and Mr. A. H. Pearson, The Hut, Lowdham, Nottingham; trade exhibits, Mr. James Douglas, Great Bookham, Surrey; Mr. E. Beckett, Aldenham House Gardens, Elstree; and Mr. N. F. Barnes, Eaton Gardens, Chester.

The premier award for "the most imposing and meritorious festal display," class A, was captured by Mr. W. A. Holmes, nurseryman, Chesterfield. It was a well-balanced and very bright assortment of golden yellow Crotons, fairy Cocos, Liliums, and Carnations in masses, with a thick background of tall Crotons, Blush Rambler Roses, *Negundo aceroides variegata*, Anthuriums, ferns, Coleuses, Caladiums, Crassulas, and *Cineraria maritima*, with its bright silvery leaves. The second prizeman (Mr. Jos. Pickersgill, Leeds), was decidedly behind his rival, with less colour and brightness. A notable feature was two tall iron rods arched over at the top, with moss-balls suspended, and into these were fixed *Odontoglossum* spikes. The rods were draped with the new *Vitis Henryana*. The group itself was composed of *Miltonias*, *Cattleyas*, Carnations, good Crotons, *Nepenthes*, Roses, ferns, and Coleuses. The plants were splendidly cultivated, but greater richness, as we say, was required. The third place fell to Mr. W. Vause, Leamington,

who had a fairly bright group, but badly finished, and too crowded.

In the other jubilee classes for the most meritorious combination display of horticultural products there were three competitors, and the premier prize fell to Mr. Charles E. Simpson, 24, Spurriergate, York (gardener, Mr. F. Nutbrown). The chief features of the exhibit were various floral designs, notably a font of white and purple Pinks, with a fountain in the centre; a cushion in mauve Pinks, with *Odontoglossums*; a Prince of Wales' feathers; a horse collar in white and crimson *Pyrethrums*; and a huge circular wreath in white Stocks and pink Carnations. Bouquets of dark Roses and of *Odontoglossums* were also interspersed, while the front portion of the table was filled with high-class Melons, Lemons, Peaches, Bananas, Pineapples, Strawberries, and Apples. The whole scheme was tasteful, good, and well carried out. Messrs. W. Artindale and Son, of Sheffield, were second, with a huge harp in lavender Sweet Peas, Liliums, and orchids; "gates ajar," done in white Stocks, with a frame of pink Roses; also a bay-leaf wreath, vases and baskets of flowers, but no fruit. Messrs. J. Backhouse and Son, Ltd., were third, having a lady's hat and muff in flowers, and other handsome designs, specially a harp in white Roses, with the corners in crimson Roses; another big wreath in Lilies of the Valley, with pink Roses at the top, was fine. They also had some dishes of good fresh fruits.

The two other special classes, c and d, were poor, and only enticed one exhibitor each. For a display of bulbous and allied cut flowers Messrs. Walshaw and Son, of Scarborough, were awarded the fourth prize; and for produce (fruits, flowers, plants, and vegetables) from a Yorkshire garden, Lord Londesborough's gardener, Mr. McPherson, was the only exhibitor, and obtained the second prize.

Class 1, as usual, was for the group of miscellaneous plants, foliage and flowering, covering a space of 300 square feet. A total amount of £71 was offered in six prizes, the first four amounts being respectively £20, £16, £12, and £10. However, there were but five entrants, and the leading prize fell to Mr. W. Coulthurst (gardener, Mr. M. Skinner), Gargrave House, Leeds. The display was somewhat dull, especially at the front, which was composed of moss, rustic work, and a water-pool. Various orchids, Crotons, and *Spiræas*, with *Humea elegans*, pyramidal Roses, and *Hippeastrums* were the main central features. The second prize fell to Mr. Jos. E. Sharp, Valley Nurseries, Almondbury, Huddersfield, who ought, in the opinion of a large number of excellent judges, to have been easily first. The group was very much like others that we have seen—rich, nicely proportioned, with well-grown good stuff. Mr. James Blacker (gardener, Mr. W. Curtis), Thorpe Villas, Selby, was third; Messrs. Simpson and Son, Selby, fourth; and Mr. G. Cottam, Alma Gardens, Cottingham, fifth. The specimen plants were below par, except those in class 4.

In class 4, for six specimen stove and greenhouse plants in flower, by far the finest lot came from Messrs. Cyphers, who had immense specimens of the following:—*Bougainvillea* Cypheri, *Ixora Fraseri*, *Erica ventricosa magnifica*, *Erica Cavendishiana*, *Clerodendron Balfourii*, *Ixora Pilgrimi*, *Brunfelsia* (*Franciscea*) *calycina*, and *Azalea Modele*.

The *Pelargoniums* are always a chief feature, and though not numerous, the trained, flattened specimens were very fine. The R.H.S. awarded a silver Flora medal to the winner of the first prize in class 29, for six specimens of double-flowered *Pelargoniums*. This fortunate exhibitor was a workingman, Mr. W. F. Crowther, 1, Winnington Terrace, York. His plants would measure 4 ft in diameter, and were crowded with flowers, the varieties being *Decoration* (scarlet), *Boston Spa* (pink), *Mme. Sherbutt* (carmine), *La France* (salmon-rose), *King of Denmark* (salmon), and *Raspail Improved* (crimson). The second prize fell to Mr. John W. Clark, Clifton, York. In the succeeding class for three specimen double-flowered Ivy-leaved varieties, Mr. Wedgwood, York, was leader, and Mr. H. Pybus, Leeds, second, the best forms being *Sir J. Hatfield* (rose-carmine), *Leopard* (magenta), *Fair Maid of Guernsey* (maroon), and *Charles Turner* (rich cerise).

The fancy *Pelargoniums* were fairly large, but did not make the show that the zonals did.

The orchids also formed a prominent feature. There were eight classes, beginning at class 16, for a table of orchids, where Messrs. Moore, Ltd., of Rawdon, Leeds, and Messrs. Cyphers, Cheltenham, were placed equal first. Moore's had the more effective arrangement, with tall pyramids of flowers. Cyphers staged *Dendrobium atroviolaceum*, *Oncidium varicosum*, *Cattleyas*, and beautiful *Miltonias*. For the ten orchids in bloom, Messrs. Cyphers beat Mr. W. P. Burkinshaw, of West Hill, Hesse (gardener, Mr. J. T. Barker), the latter with fine *Cattleyas*, including *Mrs. Myra Peeters* and *Lælio-cattleya Canhamiana alba*. The same order was followed for the six orchids (class 18), Mr. J. Robson being third in each case. Col. Holford (grower, Mr. H. G. Alexander), Tetbury, won the Veitch Memorial gold medal, and also a R.H.S. gold medal for his effective display, which included the twelve plants required for class 20. These were marked off from the others of the

group by a little disc bearing the figures "20." His specimens included *Cattleya Dusseldorfei* Undine with twelve flowers; *Miltonia vexillaria* Chelseaensis, *M. v. Empress Augusta* Victoria, *Lælio-cattleya Canhamiana*, *Cypripedium callosum* Sanderæ, *Cattleya fulvescens*, and *Dendrobium Dalhous-nobile*. There were other fine plants in this group which deserve to be named if space allowed. Mr. Robson was second for three orchids; Mr. W. P. Burkinshaw, West Hill, Hessele, second for six, and also for ten orchids, and also for six orchids, and he won the Veitch Memorial bronze medal for a dozen orchids. Mr. Burkinshaw led for three orchids, and Mr. F. J. Montagu, Melton Park, Doncaster (gardener, Mr. E. Hill), was placed second for six orchids and second for three orchids in the amateurs' section.

Fruit and vegetables occupied a deservedly prominent place. Mr. James Gibson, gardener to the Duke of Portland at Welbeck, best known as a famous vegetable grower, won first prize in class 67 (open), for a decorated table of fruit, gaining 89 points. All the fruits were very fine, and the decorations were in *Oncidiums* and *Eulalia*. He also annexed first prize for a collection of six kinds of vegetables in class 84, the prizes offered by Messrs. Sutton and Sons. His dishes were Sutton's Gladiator Potato, Magnum Bonum Bean, Magnum Bonum Cauliflower, Tomato Eclipse, Pea Duke of Albany, and Sutton's Favourite Carrot. Mr. Ben Ashton was second. Mr. Edwin Beckett led for the six vegetables in Messrs. Webb's class, having Early Mammoth Cauliflower, Potato Wordsley Pride, Pea Stourbridge Marrow, Tomato Sensation, Prizewinner Carrot, and Moore's Cream Vegetable Marrow. Mr. A. R. Searle, Castle Ashby, was placed second.

In the fruit classes, other than the one mentioned (where Mr. Goodacre followed Mr. Gibson), for the collection of ten kinds, Mr. J. C. McPherson, gardener to the Earl of Londesborough, was a good winner, followed by Goodacre and Colebrook Bros. The prizes were very fairly distributed. For 6 kinds, only 2 sorts of Grapes (2 bunches each) allowed—1, The Earl of Londesborough; 2, Lady Beaumont; 3, Colebrook Brothers. Collection of fruits, 4 kinds (excluding Pine), 1 sort of Grape (2 bunches) only allowed—No first; 2, Lord St. Oswald; 3, The Earl of Londesborough. Two bunches Black Hamburg Grapes—1, Lady Hawke; 2, Lord Hotham; 3, Lady Beaumont. Two bunches white Grapes, any variety—1, Lady Beaumont; 2, Lord Hotham; 3, W. C. Gray. Six Peaches—1, Col. Harrison-Broadley, M.P.; 2, The Marquess of Northampton; 3, The Earl and Countess of Carlisle; 4, The Marquess of Ripon. Six Nectarines—1, The Earl of Harrington; 2, Col. Harrison-Broadley, M.P.; 3, The Earl and Countess of Carlisle. Scarlet fleshed Melon—1, Lord Elphinstone; 2, The Marquess of Normanby; 3, The Earl of Lathom. Green fleshed Melon—1, The Duke of Portland; 2, J. R. Twentymen, Kirby Misperton; 3, A. S. Lawson, Aldborough. White fleshed Melon—1, W. C. Gray; 2, the Right Hon. Lord St. Oswald; 3, W. D. Cliff, Leeds. Six Figs—1, Marquess of Northampton; 2, Earl of Harrington; 3, Lord Elphinstone. Dish of Cherries—1, Duke of Portland; 2, Earl of Londesborough; 3, J. Brennand, Baldersby Park, Thirsk. Dish of Strawberries—1, F. Samuelson, Beckenborough Hall, Thirsk.

There was a large display of smaller groups of plants which, arranged on the two sides of one of the tents on low stands, were very effective, though the mixing up of the different classes made examination a very difficult matter. For group of Cannas, Mr. W. Langstaffe, York, was first, and Messrs. Waltham, Scarborough, second. For group of Carnations, Mr. Pickersgill was first, and Messrs. Waltham second. Gloxinias, Sir J. Grant Lawson led, and Mr. Richard Lawson second. For eight Gloxinias, Mrs. Craven beat Mrs. Whitehead; and for a group of Begonias, Mr. F. Y. Styen had a beautiful display.

There was a grand display of Roses. To the general visitor no part of the show was more attractive. For the best collection of Roses in pots and cut blooms, artistically arranged on table 18ft by 5ft, there were five entries. First place was awarded to Mr. Geo. Prince, Longworth, Oxford, with popular varieties of rambler and decorative varieties, and stands of exhibition blooms in front; the arrangement was most attractive. Second place was awarded to Messrs. W. and J. Brown, Stamford, with a similar, but slightly inferior, exhibit. Mr. Geo. Mount, Canterbury, had only third place. We presume want of variety told against this exhibit, which for effect and beauty of blooms was much the finest. Mr. J. E. Skaife, York, also gained a first with a showy handsome display. Mr. W. Todd, York, was second; and Mr. Geo. Mount again third.

Cut Blooms. For seventy-two blooms, not less than thirty-six varieties, there were no fewer than nine entries. The display was good, though some of the stands were hardly first class. Messrs. D. Prior and Sons, Colchester, were awarded first place with a nice fresh lot of blooms, well varied in colour and variety. On the stand were handsome blooms of Mildred Grant, Caroline Testout, Dr. Andry, Maréchal Niel, Captain Hayward, Suzanne Marie Rodocanachi, Liberty, Lady Mary Fitzwilliam, Mrs. Mawley, Madame Jules Graveureux, Queen of Spain, A. K. Williams, Marie Verdier, &c. Mr. Geo. Mount, Canter-

bury, was just second, with a really handsome exhibit, not so rich in teas, but of great merit; very specially attractive were blooms of Mrs. John Laing, Hugh Dickson, Ulrich Brunner, Joseph Lowe, Richmond (most superb). Messrs. B. Cant and Co., Colchester, were third with a capital lot; and Messrs. Harkness and Son fourth, their blooms not being quite opened. For forty-eight varieties, Mr. Geo. Mount gained first place with a splendid exhibit; Messrs. Prior second; while for thirty-six varieties, Messrs. Harkness gained premier position with good blooms, and Mr. Geo. Mount second.

Carnations were good. For twelve vases there was, however, only one exhibit, to which first prize was awarded, the exhibitor being the Marquis of Northampton.

Hardy border flowers were a very imposing and interesting display, the collections being of much merit and interest. For a collection of hardy cut flowers on space 15ft by 6ft, there were four entries, and Messrs. Gibson and Co., Leeming Bar, Bedale, led. Messrs. Artindale were a capital second, a great vase of *Gladiolus ramosus* in the centre being very effective. Messrs. Harkness and Son were third with a good collection, strong in Pæonies. For twenty-four vases Messrs. Gibson were also first; and Messrs. Harkness second. For twelve vases hardy flowers, The Marquis of Northampton (gardener, Mr. Searle), gained first place, and Mr. W. Hutchison second.

The display of bouquets and other floral exhibits was exceedingly good. A greater number has sometimes been seen at York, but never probably such general choiceness. Messrs. Perkins and Sons, Coventry, exhibited very largely, and gained nearly all the prizes, with exhibits that for richness, choiceness, and elegance were quite up to their best efforts, their first prize single bouquet being the best specimen of the bouquetist's art we have ever seen at a flower show. For two bride's bouquets, two ball bouquets, two hand bouquets, and single bouquet, Messrs. Perkins and Son were first. Messrs. Colebrook Bros., and Messrs. Addis and Rowntree were the principal winners of the other prizes.

Messrs. Clibrans, of Altrincham, Cheshire, confined their efforts to a group of choice ornamental-leaved hardy shrubs and climbers. The display was very pleasing, comprising, at the back, a stately *Phyllostachys*, and around the front of it some well-grown plants of *Dimorphanthus mandchuricus variegatus*. These were 6ft high. In the body of the group were fine leaved Maples, in blood-red, pale yellow, cream, and white. Acer campestre marmorata, with greyish mottled leaves, was very pretty in its 5in pots. The new *Vitis Henryana* furnished a clump; also *Vitis vinifera purpurea*, *Vitis flexuosa major*, and the Vine-like *Actinidia chinensis*, a vigorous climber. Various climbing Ivies were also seen, among them being *Hedera Helix* Mrs. Pollock, green and yellow; *Hedera dentata aurea variegata*, and *Hedera Helix chrysophylla*. Lastly there were healthy, clean young plants of *Cupressus macrocarpa aurea*, *Juniperus Bermudiana*, shapely bushes of *Abies pungens glauca*, golden reticulated Honeysuckle, and an outer row of *Eurya latifolia variegata*. *Dracæna Doucetti*, of which Messrs. Clibrans hold a very fine stock, was also included in this pleasing group of well-grown shrubs and plants.

Following is the list of awards:—

The GOLD JUBILEE MEDAL offered for the best exhibit in the show was awarded to James Backhouse and Son, Ltd., for their rock garden exhibit.

GOLD MEDALS.—Lieut.-Col. Holford, Messrs. James Veitch and Sons, Ltd., Wm. Cutbush and Son, James Backhouse and Son, Ltd., Mr. J. Coulthurst.

SILVER CUPS.—Messrs. James Pickersgill, Joe S. Sharp, James Blacker, George Prince, James Cypher and Sons, the Duke of Portland, the Earl of Harrington, R. Smith and Co., Ltd., R. H. Bath, Ltd., Geo. Bunyard and Co., Ltd., Hugh Low and Co., Kelway and Sons, R. P. Ker and Sons, Dicksons, Ltd., Artindale and Son.

HOGG MEDAL.—Messrs. Laxton Bros.

SILVER BANKSIAN MEDALS.—Messrs. Batchelor and Son, J. E. Skaife.

SILVER-GILT FLORA MEDALS.—Messrs. John Peed and Sons, W. Vause, J. Wood, W. and J. Brown, George Mount, W. P. Burkinshaw, J. Moore, Ltd., G. Gibson and Co., Harkness and Son.

SILVER-GILT KNIGHTIAN MEDAL.—Messrs. Sutton and Sons.

SILVER FLORA MEDALS.—Messrs. John Forbes, C. W. Breadmore, W. Kettlewell, W. F. Crowther, Kent and Brydon.

GOLD VEITCH MEMORIAL MEDAL to Lieut.-Col. Holford (grower, Mr. Alexander).

BRONZE VEITCH MEMORIAL MEDAL to W. P. Burkinshaw, Esq. (grower, Mr. J. T. Barker).

Messrs. Sutton and Messrs. Webb each inform us that they received a gold medal for their exhibits.

[*.* We regret that owing to so much space being occupied by the index, comments on the non-competitive exhibits have had to be held over.—Ed.]



Hardy Fruit Garden.

STRAWBERRIES.—There is every prospect that crops of these will generally prove bulky. At the moment of writing prices are good, but before printing it is quite possible we may have experienced the inevitable slump. Almost all varieties we have noticed are bearing heavily. Royal Sovereign is well up to its reputation for earliness and cropping; Laxton is good, as also this season is Sir Joseph Paxton, a variety which during the past few seasons has suffered in repute, it neither growing nor cropping well. Bedford is distinguished by luxuriant growth and heavy crop; whether the flavour and texture will prove all that may be desired we are inclined to doubt. At present we personally are not satisfied with either, but the personal element is a great factor in deciding such matters, and the variety may become a popular one. We are yet waiting for one that can be described as an all-round improvement on Royal Sovereign.

GOOSEBERRIES.—We should judge these to be, generally speaking, a short crop. Whinham's appears to be the variety to have come through the untoward conditions of flowering time better than others. This is not a bad berry for picking green, but some of the large buyers prefer the smooth-skinned Keep-sake. For bottling the latter is, no doubt, preferable, but it is certainly not as hardy as Whinham's Industry, and it is doubtful if it is as good for planting in poor cold soils. Gooseberries growing on walls and fences should have the shoots stopped which are growing straight out from the wall; pinch the young growths at fifth or sixth leaf from the base of each.

YOUNG TREES ON WALLS.—Young horizontals in particular require attention as to regulation of the young shoots. They should be trained in the correct positions, as growth proceeds, or in the needed directions. It may not be advisable to get all the young shoots level with the wires, as this may cause a check to growth, but this points out the right method of treatment needed for those which are inclined to be gross or over vigorous. If too many shoots are produced between the tiers they must be pinched rather close back. Keep insects in check by cleansing with clear water, or in bad cases use an insecticide.

PLUMS.—The early promise of a heavy crop of most of the varieties scarcely appears likely to be fulfilled. To begin with, many old trees of Egg Plums flowered but thinly, the result most probably of carrying such a huge crop last season. Monarchs have fallen until but a sprinkling remain, and Herons are as scanty so far as we have seen. Belle de Louvain is apparently a good crop with many growers, and Victorias are fair. Prolifics are now a light crop. Where neither greased nor sprayed, numbers of trees look rather miserable. Aphids also has been rather prevalent, and has evoked scarcely any attention or called forth any efforts towards repression.—J. W., Evesham.

Fruit Culture Under Glass.

STRAWBERRIES.—The plants placed in cold frames as previously advised will now be useful in the northern counties for the latest supply. I always found the cold frame supply most valuable at this season, but there must be no lack of water, with abundant ventilation. The plants when cleared of their fruit answer a double purpose, for if they are planted out in good land and well enriched with decayed manure and watered they will give a late summer crop. In planting, it is well to draw drills, and to plant firmly, removing the old drainage. The new stock for potting up later should be making good progress. After a hot day the plants benefit greatly by damping overhead late in the day. Soil should be prepared and pots got in readiness for the work later on.

VARIETIES AND FLAVOUR.—In private gardens flavour should form an important item with regard to the fruits; and in this respect, for late supplies, Laxton's Fillbasket is excellent. I am aware it is not nearly so much used for pot work as Royal Sovereign, but it is a good pot variety, and of grand flavour, and by no means a small fruit. It is later than the last named; the fruits are firm, and it travels well. In the open it is a great cropper, and under glass I have never had any plants infested with mildew. Of newer varieties Laxton's Reward is well worth a trial to follow the Sovereign. There is in this variety a good bit of British Queen, with the vigorous growth of the Royal Sovereign, and remarkably rich flavour. A word as to new stock, and by this I do not mean new varieties, but the im-

portance of getting new stock from a good source if the home plants are at all weak, or have been a long time in the same soil. I like to renew my stock every few years in a poor soil, and excellent results follow. The cost is not great, as Strawberry specialists grow great quantities for the purpose, but it is well to order early.

TOMATOES.—The early plants will now be ripening their fruits freely, and more care will be required in watering, as excess causes the fruit to split badly. The atmosphere also should be drier and the house well ventilated. At the same time sufficient water must be given to keep the succession fruits moving freely. The ripe fruits should be gathered regularly to prevent them getting soft or over-ripe. Close stopping will be necessary, but I am not advising extreme measures, as the main leaf growth should not be cut too hard, only the laterals or useless ones. Plants cropping freely in rather small pots will require more liquid fertiliser, and it is well to mulch the surface with spent manure. Plants for late supplies should be sown. These are best raised as hardy as possible. They do best in cold frames, and when a few inches high, expose them freely. Any structures at command that will be available for the next three or four months should be planted with strong plants.

CUCUMBERS.—The earliest plants will have become weak, and I think better results are obtained from young plants, so that successions should be planted. Given plenty of heat and moisture, the growth is rapid. Plants in fruit should get a high temperature and moist atmosphere, frequently syringing the plants. Do not overcrop at the start. Severe thinning out must be practised with healthy young plants, laying in a good lot of growths for future work. Top-dressing at least once a fortnight with rich soil and manure should not be omitted to help the new surface roots; mixing a little bonemeal in the compost.

PLANTS IN FRAMES.—At this season excellent results follow frame culture if the plants are well looked after as regards thinning the foliage and fruits. With deep frames I have made a temporary trellis of bamboo, and trained the plants over. The fruits grown thus are a better shape.—G. W., Brentford.

The Plant Houses.

SUMMER TREATMENT OF POT PLANTS.—Many cool greenhouse plants derive considerable benefit from outdoor treatment during the summer. Not only is the health of the plants improved, but the shoots ripen better, causing the plants to flower freer, and also last better through the dull days of winter. Prominent amongst the subjects for which this treatment is desirable are Rhododendrons, including Indian Azaleas, Ericas, Cytisus, Acacias, Eriostemons, Boronias, Olearias, Leptospermums, Camellias, Epacris, Clivias, Leonotus, Cassias, Sparmannias, &c. In addition to these there are many plants which, after having been grown under glass, may with advantage be placed outside or have the lights removed from the frames to ripen the growths in late summer and early autumn. Amongst these may be mentioned Tecoma Smithii, Peristrophe speciosa, Jacobinia Ghiesbreghtiana, and Senecio grandifolius.

ZONAL PELARGONIUMS.—The plants grown from cuttings inserted in March are ready for the pots in which they are to flower in autumn and early winter. Pots 6in in diameter will be found a convenient size. For three weeks or a month after potting the plants will be better in a frame, after which stand them in the open air. Remove all flower buds, and the points of the shoots at intervals to form dwarf bushy plants. With us at the present time the zonal Pelargoniums provide one of the brightest patches of colour in the conservatory. Given a light position in the house and fairly frequent applications of weak liquid manure these plants will continue to flower till the young plants are ready to take their place in autumn.

BEGONIA GLOIRE DE LORRAINE.—The plants propagated early are ready to be transferred to 6in pots. They will be found to grow best on the shady side of an intermediate house. If this position cannot be given them, a thin coating of white-wash or "Summer Cloud" should be placed on the glass, in addition to rolling down the blinds when the sun shines. Syringe the plants and stages several times a day to keep the growths sappy. If the young shoots become at all hard, it will be an almost endless job picking off the flowers. We find plants grown from leaf cuttings less prone to produce flowers than those of young shoots taken in the ordinary way.

THE STOVE.—The outside temperature at present is sufficient for the plants; fires may, therefore, be discontinued. Syringe and damp the stages and floor several times daily. The blinds must be let down during the brightest part of the day, but do not overdo the shading, or the foliage plants will not develop their beautiful colours. Syringe the plants, and close up the house early in the afternoon, when the sun will raise the temperature considerably. Weak applications of liquid manure will be helpful to the free growing subjects, the pots of which are well filled with roots.—A. O., Kew, Surrey.



All Correspondence relating to editorial matters should be directed to "THE EDITOR," 12, MITRE COURT CHAMBERS, FLEET STREET, LONDON, E.C. Persons sending manuscript or photographs, when not specially requested by the editor, and making no demand for remuneration, are presumed to solicit publication without payment. In order that no misunderstanding may arise, and in order to secure the return of their contributions, contributors should state the fact that they expect remuneration, and in all cases, even when contributing voluntarily, correspondents should enclose a stamped envelope if they expect their enclosure to be returned. Under no circumstances can replies or other information be sent privately, even if stamped addressed envelopes are forwarded.

TREATMENT OF ESPALIER PEAR TREE (T. W.).—As the Pear tree is making abundance of shoots, it is evident the roots are well at work. You may, therefore, treat it in a similar way to young trees as regards thinning the shoots and training, &c. Put plenty of litter about the tree to prevent the drying sun and wind reaching the roots. We hope you have not planted it too deep. We strongly advocate planting all kinds of fruit trees as near the surface as possible. If planted deep you had better lift it in the autumn. It will do the tree good, by causing it to make double the quantity of fibrous roots.

PRESERVING GRAPES (West House).—The best of all modes of preserving Grapes as long as possible in an unshrivelled state is to leave the bunches on the Vine, keeping the vine dry and well ventilated. If they must be cut, hang them in a dark, dry, cold closet, suspending them by a string tied to the lowest end of the bunch, as the reversed position keeps the berries as much separated as possible. Mr. Thompson, of Dalkeith, a first authority, cuts off the spur with the bunch, and thrusts the cut end into a thick slice of Mangold Wurtzel; half a small Turnip might do as well. Whichever plan is adopted they should be looked at almost daily, and each berry cut off by the help of a pair of sharp-pointed scissors immediately any mould appears upon it.

BEECH TREES (Beech).—The cutting of the roots to within 4ft of the base in excavating for a carriage drive, some of the roots 4in to 5in in diameter, and numerous others of lesser size, means depriving the tree of all the roots on that side of the tree, and these the most actively feeding ones, suffices to account for the unsatisfactory state of the tree. Though Beech trees thrive on moor-land and even spring up among the Heather from self-sown seeds, as they attain spreading heads they completely destroy the Heather, and even grass, the ground under healthy Beech trees being quite bare. We also consider that the feeble growth of the tree in question is due to some extent to the greater mutilation of its roots, and the covering of Heather would hardly account for the first growth being so feeble, though it might account for its not being sustained by the all-important moisture.

RHODODENDRONS AND GORSE (Salop).—The bank, which up to now has been covered with Gorse, can be planted with Rhododendrons of one colour to flower about June, not before. But the soil being rather shaley, instead of taking out holes for the plants and filling up with prepared soil, we should advise breaking up the whole of the bank to at least a spit deep, burying the debris of the Gorse, and thus give the Rhododendrons the root run of the whole surface. If you only make holes, these may become receptacles for holding water, and if not that, to some extent prevent the plants from pushing their roots beyond the holes as freely as they would if the whole were loosened. This would not preclude your giving the plants the advantage of prepared soil for a start, while the debris of the Gorse would be converted into a sort of vegetable mould in which we have found Rhododendrons succeed admirably; indeed, we have frequently supplanted Gorse beds by Rhododendrons and other American plants. Pink varieties are not numerous, but some of this colour are very fine, particularly Florence Smith, Henrietta Sargent, and Pink Pearl. Others of pink shades are: Concessum, Giganteum, Florence, Lady Frances Crossley, Mrs. Arthur Hunnewell, Mrs. Charles Leaf, Mrs. Charles Thorold, Mrs. Holford, Mrs. William Agnew, Sylph, and Vivian Grey. If greater variety is wanted, it would probably be necessary to have recourse to the rose coloured, such as Alexander Dancer, Annie Dixwell, Countess of Normanton, John Spencer (late

bloomer), Lady Armstrong, Lady Falmouth, Marchioness of Lansdowne, Mirabile, Mrs. F. Phillips, Sir Arthur Guinness, Stella, and the Crown Prince.



Using Foundation.

The fact that new foundation will be drawn out and filled with eggs much quicker than a ready drawn-out old frame, is not sufficiently well known amongst bee-keepers, and as the past Spring has left many colonies weak in numbers, any device by which they can be increased by encouraging them to breed will be welcome. This preference for new foundation can be taken advantage of when the colony to be operated upon covers no less than four frames, two of which are filled with brood, and the whole of the four well covered with bees. The bar of foundation must be inserted in the middle of the stock and all covered up warmly and snugly, and, as a rule, the frame will be found drawn-out and filled with eggs from end to end the next day; whereas if an old drawn-out comb is given them, the queen does not seem to lay as quickly as she does when the bees have their enthusiasm roused by the drawing out of the foundation.

While the latter work is in progress, the summer hum is heard. All is bustle and energy, and the feeder is emptied rapidly, the queen depositing an egg in each cell as soon as it is prepared for her. Immediately the bar is drawn out and completed another may be inserted next to the previous one, and so on, *ad lib.*, as soon as the bees are sufficiently numerous to cover them. The results, when the first frame hatches in three weeks, will be astonishing. Provided the whole frame hatches at once, the queen will fill the cells with eggs as the bees hatch, and the colony will then be in a position to take care of two additional frames; in fact, the colony never looks back after the first frame hatches, through it receiving such a crowd of energetic workers with the large addition of young bees.

The advantages of using foundation and obtaining such results are very numerous, and now let us have the disadvantages, or to be more correct, peculiarities, in working it in such brood chambers. The principal, and the only one really worth mentioning, is to avoid giving too many frames at once, as is sometimes done in the case of swarms. One frame to each pound of bees is enough to commence with, others to be added day after day between those already drawn out. If too many are given at first many of the sheets of foundation leave the top of the bar frame through the weight of the clustering bees pulling them from their attachment before the bees have had time to build them fairly firm in their position, and if the bees do not cover the whole of the frames on both sides, the outer side of the foundation will not be worked at all, only the inner side, which will cause the bottom edges to curve outwardly through the weight of the honey being on one side only, causing crooked combs. This method of putting new bars in hives is very beneficial in many ways, and superannuates the old ones if done gradually, say at the rate of two per hive each year.—E. E.

Starters and not Full Sheets of Foundation.

As these are days when bee-keepers in conjunction with others are called upon to practise rigid economy, the above idea is well worthy of our earnest consideration. The doctrine has long been preached that we ought always to fit up the brood chamber with full sheets of foundation. If people will only think over the matter they will see that bees are secreting wax in greater or less proportion right through the honey season, for to this end they are constructed. Especially is this the case when bees have swarmed. They have gorged themselves with honey in order that they may construct a new house, which, in a state of nature, would be in a hollow tree. If starters only are given to a swarm they can utilise the secreted wax in constructing comb in the brood chamber, and, generally speaking, they only build worker-cells during the first year. In this manner a considerable economy can be effected in the saving of foundation. But there is another advantage. Much time, which could be better occupied; is saved, for sometimes drawn-out combs are given, and the bee-keeper forgets that the cells have all to be cleaned out by the bees before the queen can deposit eggs in them, and thus the bees are kept below, and there they will store honey, thus cramping the space for the queen to deposit eggs.

If starters only are used, and sections containing full sheets of foundation or drawn-out comb in shallow frames are put on above the queen-excluder zinc, then the bees are forced to store the gathered nectar above, because there is no room below, and the queen is utilising the cells as quickly as they are prepared.—HYBLA.



Where the Shoe Pinches.

Reformers and reforms as a rule are not popular. We hate change, we hate dictation, and while brooding over the fancied wrong of the moment we totally fail to see any ultimate benefit. A child resents his parent's interference with his enjoyment of a green apple, because the prospect of colic is not very definite; he would rather go his way and risk the pain, and perhaps it is the wisest plan in the long run to let him do so—only the experiment is futile if the attack be a mild one.

Left to themselves so many grown-up people are inclined to act in childish ways. If they hurt only themselves the consequences would not be of much importance, but of all the difficult things in life perhaps the most difficult is to limit the result of our wrong doings to ourselves alone, and hence it is quite necessary that precautions be taken for the welfare of the community at large. Happily the time has arrived when it is criminal to neglect or treat lightly cases of infectious disease among the human population, and the consequence is that outbreaks that might assume the proportions of an epidemic are confined in their area, and there is a chance of stamping them out.

In a similar fashion the Board of Agriculture strives to deal with the diseases of animals, but the officers are often much hindered by the real or assumed ignorance of the people with whom they have to deal, and for whose benefit various enactments have become law. Of course, there is something to say on both sides, and the farmer hates any interference with his dealings in regard to his live stock; that is, he prefers to doctor sickness himself, and in case of death acts as his own sexton. This is all right as far as it goes, and if he turned his attention only to simple ailments and accidents no one could blame him. A farmer is seldom if ever a qualified "Vet.," and therefore cannot be expected to know how to treat serious cases; and he certainly strongly objects to call in the Government inspector when suspicious symptoms arise which are unfamiliar to him.

It is here he errs. We are thinking just now of that horribly fatal disease known as anthrax. It comes so unexpectedly, it is so rapid in its progress, and it is a thing not to be played with. One dead carcass may spread destruction all around; and not for the present time alone, for the infection remains for a very uncertain length of time. There is nothing but the destruction of every bit of tissue to make things sure, and it is the safest plan to kill and burn every head of stock that may have been in proximity to the first victim. This sounds a little hard for the farmer, and we can naturally understand how resentful he must feel; but it is the only safe way, and therefore *pro bono publico* he should submit with as good a grace as may be. Even when all precautions are taken there may be a further outbreak, but the chances are against it.

In those cases where there is a recurrence of the plague, some tiny point may have been overlooked. A trained inspector knows what to do, and the farmer should back him up wholeheartedly. There has been a slight increase in the number of cases of anthrax during the past year, but we hope not enough to cause great anxiety.

Some of the papers teem with complaints as to the sheep dipping regulations. Scab is a very nasty thing to get among a flock, and there is often great carelessness about its treatment. Dip, oh! yes, dip, but with what? The Government answers that question, and lays down stringent regulations as to the nature of the dip. The men who have clean, healthy flocks have always dipped to ensure the safety of their sheep, and it is owing to their ceaseless care that they are free from any suspicion. It might be supposed that everyone who owned sheep would only be too anxious to keep them in healthy state. It ought to be so, but it is not; and, therefore, to catch such persons, who are a danger to the community, these stringent regulations have to be made. We were reading on this subject in a South African paper, and the writer was contrasting two flocks side by side, one clean and flourishing, and the other full of filth. Both had been dipped, nay, possibly used the self-same dip, but the results were not alike.

In all probability one man took the precaution to lock the door while the horse was in the stable, the other waited till the horse was stolen. Prevention is always both easier and better than cure, and, again, there are slovenly dippers—we will not say dips. We have heard the question discussed over and over again; the nature of the dip, the strength of the application, and the length of time that the sheep should remain

in the bath. A noted firm of dip makers avers that few people, however careful, time the length of the immersion watch in hand. Try and boil an egg by guess; simple as it may appear, it is a difficult matter. There may be a flock of two or three hundred sheep waiting to be dipped—time presses, and they are hurried through the cleansing mixture. No account is taken of the fact that the fleeces are thick and heavy, and well-nigh waterproof with grease.

Then, again, it is so easy not to quite follow the directions as to mixing. A little too much or a little too less, what does it matter? Everything. The maker knows the strength of the compound, therefore he is the best judge as to the quantity necessary per gallon of water. We fancy those gallons of water are much oftener guessed than measured.

Years ago we used to hear constantly of sheep being poisoned by overdressings. This was before the art of making dipping compounds was so well understood as it is to-day. We often think sheep in the bath are hustled about and subjected to rougher treatment than need be, and we think again that sufficient care is not taken to keep the fresh-dipped sheep from all source of fresh infection. The fact of dipping once does not render the animal immune for the rest of its life. We think we may class scab as one of the diseases due in a great measure to carelessness, and till we can make all sheep owners careful, and we are trying to do this by law, scab will not die out. But scab is not, and never will be, we trust, such a scourge as swine fever. That seems a hopeless disease, partly because pig-keepers are so loath to acquaint the proper authorities with the fact of an outbreak of disease till that disease has gained such a firm foothold that it is well-nigh impossible to dislodge.

It is the slaughter of suspects that pinches, and yet reviewing the history of the past there is no other method that can possibly compare with this process of stamping out. It is drastic, but so vitally necessary. In one year 10,700 deaths from this disease, and the precautionary slaughter of 11,275 more. It is a serious matter, but what would the state of affairs have been if those 11,275 pigs had been left alive to be possible sources of infection? The man who can invent a cure for swine fever, or evolve some process of vaccination against it, would make his fortune, and deserve the thanks of this and future generations.

We see there are people clamouring again for the importation of store cattle. We should have thought that with years would come wisdom, but each generation appears to forget the experience of its fathers. Why should we admit store cattle freely to our ports when all other countries have the most stringent regulations? Are we in such haste to be rich that we run the risk of importing fresh diseases? A general outbreak of foot-and-mouth would soon set us thinking. There is not a mine of gold in grazing as it is, and a heavy loss from that cause would soon reduce what profit there is to a dead loss. The ills we know are bad enough—the ills we do not know may be far worse.

There is another point where the shoe pinches the careless and untidy man—the compulsory burial of all dead stock. It would hardly be thought necessary that for the offence of unburial there must be a special enactment. The veriest ignoramus should know that decaying animal matter is a public danger; but this is not the case, as any newspaper reader will see. Examples have come under our notice where carcasses have been left unburied for two months, and that not in an out-of-the-way field. Can anything be more disgusting or more worthy of punishment?

Work on the Home Farm.

At last, after a longing wait, we have a really good rainfall, something like an inch in about twelve hours, and it came so gradually that the soil must have absorbed the greater part of it. Swedes, which have suffered much from the fly, will now grow away from it, and there will be plenty of moisture to start the late turnips. We saw a farmer drilling yesterday, and he had great doubts whether the seed would germinate. He will have no doubts now. The same man had drilled his mangolds twice over, and the second sowing is coming up but very thinly. The first lot of seed was not steeped, but put into a wet and cold seedbed; the second lot was steeped and then drilled in fairly dry soil. His prospect of a good mangold crop is poor, whereas just across the road is a plot of singled plants quite a foot high. The early barley looks well, and will soon be shooting, but the May sown, of which there is a good deal, will require yet more rain if it is to make a crop. There is weeding yet to do in some fields. Wheat is greatly improved, and is running up nicely, but we have seen no ears yet.

Our local shows, of which we have three or four in the neighbourhood, are approaching. We heard a farmer grumbling because his men would be off work for these show days. Surely a labourer has a right to a holiday sometimes. It should be remembered that he has no Saturday afternoon off as nearly all other workers have. Besides, the men can be spared, for labour is very plentiful. Many miners and others are glad of farm work just now.



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